# DOCUMENT RESUME

ED 305 146 PS 017 860

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|---|---|
| AUTHOR | Gotts, Edward Earl |
| TITLE | HOPE, Preschool to Graduation: Contributions to Parenting and School-Family Relations Theory and Practice. AEL Final Report. |
| INSTITUTION | Appalachia Educational Lab., Charleston, W. Va. |
| SPONS AGENCY | Office of Educational Research and Improvement (ED), Washington, DC. |
| PUB DATE | Feb 89 |
| CONTRACT | 400-86-0001 |
| NOTE | 282p.; For a related document, see PS 017 861. |
| AVAILABLE FROM | Appalachia Educational Laboratory, Inc., P.O. Box 1348, Charleston, WV 25325 ($18.00). |
| PUB TYPE | Reports - Research/Technical (143) |
| EDRS PRICE | MF01/PC12 Plus Postage. |
| DESCRIPTORS | *Academic Achievement; Academic Failure; Child Rearing; Dropouts; Elementary School Students; Family (Sociological Unit); Family Influence; Family School Relationship; Followup Studies; High School Students; *Intervention; Longitudinal Studies; *Parent Child Relationship; Preschool Children; *Prevention; *Program Effectiveness; Regional Programs; Research Methodology; Student Adjustment; *Underachievement |
| IDENTIFIERS | Appalachia; Early Intervention; *Home Oriented Preschool Education Program |

ABSTRACT

Reported are findings of a large-scale, longitudinal follow-up study of the Home-Oriented Preschool Education (HOPE) Program, one facet of a multifaceted attack on the endemic problem of underachievement in Appalachia, which sought to find solutions viable within the region's family and cultural traditions. The scope of the study is immense, encompassing child data from the preschool years through high school graduation, including multiple perspectives of family demographics and functional indicators of child rearing performance, and focusing on the contribution of a home visitor treatment during the preschool period. The 12 sections of the report discuss: (1) background and overview of study; (2) measurement procedures used; (3) characteristics and meaning of 72 major derived variables; (4) establishing the construct meaning of indicator variables; (5) inferential studies controlling for socioeconomic status, including academic orientation, parental support of learning, parental generativity, parental nurturance/affection, parental control/dominance, and home environment; (6) nurturance and control; (7) school promotion and retention; (8) graduation, dropping out, and consequences; (9) multivariate analyses of outcomes; (10) personality and social behavior; (11) parenting and school-home relations; and (12) conclusions and recommendations. A summary is provided in the final chapter. It is concluded that HOPE was an effective primary prevention program relative to academic issues for boys and girls. Further, the program prevented unfavorable emotional patterns and personality characteristics in boys and enhanced the self-concepts of girls. Over 70 references are cited, 34 of which focus on the HOPE program and related work. (RH)

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# Final Report

## HOPE, PRESCHOOL TO GRADUATION: CONTRIBUTIONS TO PARENTING AND SCHOOL-FAMILY RELATIONS THEORY AND PRACTICE

February 1989

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# HOPE, PRESCHOOL TO GRADUATION: CONTRIBUTIONS TO PARENTING AND SCHOOL-FAMILY RELATIONS THEORY AND PRACTICE

AEL Final Report

by
Edward Earl Gotts, Ph.D.

for
Appalachia Educational Laboratory
Charleston, West Virginia

February 1989

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This publication is based on work sponsored wholly or in part by the Office of Educational Research and Improvement, U.S. Department of Education, under contract number 400-86-0001. Its contents do not necessarily reflect the views of OERI, the Department, or any other agency of the U. S. Government.

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# I. BACKGROUND AND OVERVIEW OF STUDY

## Background

From 1968 through 1971, the Appalachia Educational Laboratory (AEL) operated an experimental program called Home-Oriented Preschool Education (HOPE) as an alternative to kindergarten, since this was not generally available to children in the rural parts of the AEL Region during those years. The experiment was first conducted in a four-county area of southern West Virginia (1968-1971) and later replicated in Alabama, Ohio, Tennessee, and Virginia (1971-1973). AEL's summative evaluation of HOPE suggested that its combination of daily television lessons, weekly paraprofessional home visits to families with printed materials corresponding to the TV lessons, and a weekly group experience for children in a mobile classroom was well suited to the developmental and school preparation needs of rural and small town children and their families. Although the complete series of HOPE studies was only available in the form of technical reports deposited in ERIC, this was remedied by the appearance of a chapter (Gotts, 1983) that summarized the earlier findings, placing them in the overall context of the regional educational issues that had led to the design of HOPE. This 1983 chapter identifies HOPE as falling within the sparse tradition of primary prevention studies and provides a preview of the followup study that is reported herein, including preliminary results. Subsequently, a special literature review was prepared on "Families and Schools in Rural Appalachia" (Gotts & Purnell, 1986) as a means of more comprehensively indicating HOPE's context within rural education. This review considers a broader research program conducted by AEL during the years following HOPE's regional replications, showing that the experiment was not simply an isolated series of events. Rather, HOPE was part of a carefully considered, multifaceted attack on the endemic problem of underachievement in Appalachia, which sought to find solutions that were viable within the Region's family and cultural traditions. It will, accordingly, prove useful to the reader who wishes to understand the foregoing aspects of HOPE to commence by reading Gotts (1983) and Gotts and Purnell (1986). On the other hand, readers whose principal interest is the long-term outcomes of HOPE will find in the present treatment what they require, except for some information on the experiment's design that may readily be abstracted from Gotts (1983).

## Overview

A major followup study of HOPE was carried out starting in 1978 by an interdisciplinary team assembled by AEL for this purpose. This had been preceded by a year of planning during which the final research instruments were selected, adapted, and/or designed and developed by the team, under a planning grant from the National Institute of Education (NIE). Foundations for the followup actually predated this time, however, going back to preliminary efforts to locate the original sample starting in 1975 and to learn from their school records how they were faring. Data assembled during these preliminary efforts were all retained and integrated with the data collected during the main followup study (1978-1981). Additional contacts were made with many of the sample families when they were interviewed as a part of AEL's related study of school-family relations (1981-1983). A final phase of archival data gathering was completed by AEL via accumulation of graduation lists from all secondary schools in the geographic area of the study. In 1986-1987, the year during which the youngest children of the final original experimental cohort (i.e., from the 1970-1971 program year) were scheduled to graduate, AEL staff cross-checked all graduation lists against a comprehensive list of all the original experimental and control children and further collated this information with school dropout and graduation data obtained during all earlier phases of the study. Coders then reconciled all graduation/dropout data in the process of identifying a final outcome for each child. These data were entered into the main data files as a part of this final phase of followup (1985-1988). All of the aforementioned data thus are part of the final data file that has been analyzed for the present report. The current scope of work consists entirely of data analysis, including recoding as required, and reporting of findings. Related publications and reports that were prepared from 1985 to the present are available from AEL and are not further referenced as such in the present document except insofar as is necessary to the current exposition. These constitute additional results and dissemination outcomes pursuant to the current Office of Educational Research and Improvement (OERI)-supported work.

As will become apparent in Chapters II and III of this report, the scope of this study is immense. It encompasses child data from ages 3-5 years on up through high school graduation, includes multiple perspectives of family demographics and functional indicators of child rearing performance, and views the contribution of a home visitor treatment during the preschool period of family performance and child outcomes. Moreover, the number of individual variables is enormous, posing innumerable choices of which indicators to select in order to represent particular intended constructs, models, and relationships. From these facts it will be understood that the process of data analysis and reporting presented herein is highly selective, and that anything short of a series of volumes could not begin to portray the potential meaningful findings. Needless to say, the choice of what to omit has often been painfully made, since many other analyses and their results could have as persuasively been debated to be essential to this final report. On the other hand, it is hoped that what has been included will speak loudly for its presence in terms of social significance, psychological meaning, and educational implications.

Many early childhood experiments have had enduring results because they fostered increased parent involvement. That is, it is the ongoing contribution of the family that likely makes the kind of difference that is capable of outlasting the "washout" effect that has repeatedly been noted in experiments aimed primarily at young children rather than at families. Investigators such as Merle Karnes, Earl Schaefer, and David Weikart--all eminent contributors to the early intervention literature--commented in varied ways about being taken by surprise at some point by the unanticipated effects of families on the outcomes of well-designed and executed studies in which they had been involved. These family effects have in some instances seemed to be the effective underlying, independent variables when "sleeper effects" have been noted long after children had participated in a program.

With such considerations in mind, and recognizing the strength of the HOPE experiment's design for examining possible family effects, this followup study set out to capture a number of indications of things that families think and do that may make a difference in their children's development and performance in school. Measures of social class have served as proxy variables in the past for the things that families do and think. However, this study sought to obtain more direct and psychoeducationally meaningful measures. This effort constituted one of the main thrusts of this study and is well reflected in the measures and derived variables that will subsequently be considered in detail. The thinking was that with multiple, conceptually differentiated indexes of family functioning plus social class information, a greater percentage of child outcome variance could be accounted for than has been possible in studies that limit family information to traditional demographic measures. The study attempted to discover the areas of family functioning that may be more susceptible to intervention effects and to explore ways that families could be helped to be more effective. This kind of focus on what can change contrasts with the frequent emphasis in studies on what cannot readily be changed, namely, family social class. Moreover, social class would not be susceptible to change even if direct expenditures were available to raise the income of families of lower social class, due to the fact that it is parents' education and occupation rather than their income that underlie the usually found relationship between social class and how children are functioning, extremes excepted.

In summary, the HOPE followup study reported here draws from a rich, varied data set that includes multiple measures of children's school progress and functioning from the preschool years through high school graduation, plus family demographics and functional indicators of child rearing performance. Further, the sample represents a larger group of experimental and control families who either did or did not participate in a home-based kindergarten alternative that relied upon paraprofessional home visitors who were trained and supervised by the local schools' educational cooperative. This experimental variable represents another dimension of the study. Of the many possible analyses that could have been performed, those were selected that would advance understanding of the treatment's effects and of the interrelationships among family characteristics and child outcomes. Reporting proceeds from examination of the measurement procedures through their derivative variables to the examination of relationships that clarify the meaning of the variables, moving then to inferential analyses that are framed in terms of various theoretical and pragmatic perspectives.

## II. MEASUREMENT PROCEDURES USED

### Direct Parent Interview

This direct self-report interview was administered to parents in their homes by appointment. It was recorded on battery-operated cassette recorders and later transcribed verbatim. A quality control review was completed for each transcription. Interviewers were not told whether the participants were members of the experimental or control group. Likewise, raters who worked with the typed transcripts were unaware of the family's status within the experimental design. These same methods of controlling quality and excluding experimenter/examiner/rater bias were used with all of the other parent and child measures obtained by AEL through interview or testing or completion by teachers.

A preliminary version of the Direct Parent Interview (DPI) was prepared by AEL staff with the assistance of a sociologist-demographer, Ram Singh. AEL staff reviewed relevant literature for each section of the DPI and, in those instances for which adaptations/modifications were planned, consulted with the original investigators who had developed and reported on the measures in the research literature. Many additional procedures were considered for inclusion in the DPI; reasonableness of response burden, however, dictated that the interview be administered in about one hour. The preliminary DPI was pilot tested with a small sample (n = 30) of mothers and fathers from the subject population who had not been involved in the original experimental design. Based on analysis of their reactions, a final version of the DPI was prepared by late 1978. Both major and minor revisions were incorporated at this time to assure comprehension, simplify response requirements, and limit typical administration time to one hour for respondents who did not have time or further inclination to visit or chat. In actuality, many interviews ran well beyond this time limit due to the interest of the respondents in talking at greater length about a variety of unscheduled topics having to do with themselves, their children, and the local schools. Comments of this character could not be formally included in the database, since they were not uniformly elicited across participants. Moreover, these comments generally occurred at points in the interview when the formal protocol was at a transition point, so they were not included on the cassette recordings made by interviewers. Consequently, no further account was taken of these remarks, except to note that respondents typically enjoyed the interview visit and spontaneously extended it beyond the requested level of participation.

Considerable attention and judgment were applied to the sequential organization of the DPI in both preliminary and final versions. This was true for the ordering of questions within sections, as well as the arrangement of the series of sections. The final order of sections will be discussed below in the course of reviewing the DPI's content.

Part I. This is an adaptation of the Fels Research Institute's work on parents' academic and vocational attitudes, values, expectations, and expectancies. This work was originally reported in a number of articles and chapters (e.g., Crandall, 1963; Crandall, 1967). Walter Katkovsky and Virginia Crandall both advised us on our adaptation efforts. We followed the Fels work closely in our adaptation, retaining the wording of the original questions, maintaining the identical variable definitions and using the same scoring procedures for all of the academic measures and selected vocational measures representing the parents' statements regarding the child. The actual variables used from the Fels battery will be presented in Chapter III, as they will for all other measures referenced in the present chapter.

Part II. This portion consists of questions regarding parent-child relationships of a general or global variety such as nurturance and dominance. The questions, variable names and definitions, and rating procedures are based also on the Fels Institute work. Katkovsky was consultant for these scales. Related questions were added to this part.

Part III. This part consists of the Schedule or Index of Parental Values (Kohn, 1969), which is his final 13-item version. No changes were made in administration or scoring, and Kohn's documentation was sufficient to proceed without his direct assistance.

Part IV. Dave (1963) and Wolf (1964) developed a Home Environment Scale (HES) that was adapted and used in a number of early intervention studies. Based on their work and on experiences in studying home environment, the HES was adapted (Gotts, 1987) to fit a group of children who were at the upper elementary to early secondary level at the time this measure would be used in the HOPE followup study. Administration and scoring were handled as in the original procedures (Dave, 1963; Wolf, 1964). It is worth noting here that a small number of HES items also appeared in the Fels measure of parental academic perspective. Hence, they were not repeated in the two parts of the interview. Subsequently, in order to avoid an item overlap between certain Fels variables and the HES, they were used in the scoring of Part I in light of the respective lengths of the HES (contains 18 items without these) and the variables in Part I, which were based on many fewer items.

Part V. This part of the interview did not prove germane to the purposes of the study and was not used.

Part VI. Originally, interviewers used the forced-choice format Maryland Parent Attitude Survey (MPAS) in the pilot study, only to learn that in the sample it resulted in a large number of items being left unanswered. The MPAS's developer, Donald Pumroy (1966), was unable to account for this experience. Hoping to retain indicators of Pumroy's four child-rearing or parenting styles, research staff prepared a vastly different response format. Using the wording from his items, a paragraph was written which contained the essence of each of the styles. Parents responded to them first by using a Likert type five-point format to indicate whether they agreed or disagreed with each perspective. Second, parents selected the paragraph "most like me" and the one "least like me." For the remaining two paragraphs, they selected one as "next most like me" and the other as "next least like me." Quantitative analysis treated the two response formats as separate items of information, as we analyzed how these responses might best be combined. (For more on the Pumroy measure, see Gotts, 1988a.)

Part VI also included a locus of control measure for parents that did not produce useful variance, since during the pilot study it was answered in the same virtual way by all respondents. A revised instrument for locus of control could not be located that was sufficiently short to fit within the time limits imposed on the overall DPI, so it was necessary to forego having such a measure.

Part VII. Twenty-three demographic questions, many with multiple subparts, comprise this part of the interview. The scope of this part is relatively comprehensive, while it is simultaneously compact.

Part VIII. Traditionality of sex-role orientation is the focus of a brief scale used in this section. It was useful in some aspects of the study, but is so minimally related to academic career issues that it is not further considered in the present report.

## Indirect Parent Interview

This interview does not call for parents to engage in self-report, but, instead to respond to a series of animated line drawings by telling a story about each picture that answers a set of five questions:

1. What's happening in the drawing?
2. How does it turn out or what happens next?
3. How do the characters in the story feel?
4. Why do they act and feel the way they do?
5. Is there any teaching or learning or development taking place?

The story for each drawing is formally rated for the answers provided for each of the foregoing questions, each representing a category of interpersonal perception. These respectively are Perception of issue/event; Resolution of issue or outcome; Recognition of affective process; Reason or motivation underlying feeling, thought, and actions (also rated: maturity of conceptualization of motivation); and Comprehension of learning and developmental processes. The first four questions were devised to be substantially parallel to questions asked children of these parents when they completed the Tasks of Emotional Development Test (T.E.D.) by Cohen and Weil (1975). More will be said of the T.E.D. later.

In addition to the categories above, which related directly to the structured interview questions, each story was further rated for two global dimensions: Comprehension of child development, and an Eriksonian rating of the extent to which the story revealed facilitation of the developmental issue portrayed versus inhibition of or interference with its resolution. The conceptual basis for these ratings was operationally incorporated into the drawings in the manner described below.

Drawings were developed to represent children of five developmental age levels performing age-typical behaviors either alone, with adults, with peers, or in other more formal interpersonal settings associated with school as the children fall into that age range. The five age levels depicted are infant, toddler, preschooler, elementary age, and young adolescent. These age subsets correspond to Erikson's (1963) first five developmental stages of crises: trust, autonomy, initiative, industry, and identity. Instructions to respondents further highlight the age issue, advising that different child age levels are shown and that they are to consider this fact when evaluating and responding to the questions regarding each drawing. Gotts and Paul (1981) have described the Indirect Parent Interview in detail, including instructions for rating all categories, with illustrative examples of responses meriting each particular rating.

As is apparent from the above description, the Indirect Parent Interview is a new procedure for assessing aspects of the child-rearing orientation and problem-solving of developmental issues. It was designed to operationalize Erikson's (1963) generativity construct by embedding it in multiple child-age-differentiated behavior events that sample an ecological diversity of behavior settings mentioned in the child development and child clinical literature. It was, moreover, structured as noted earlier to enable examination of possible correspondences between parental generativity and children's responses to the T.E.D. Test (Cohen & Weil, 1975). Finally, it should be noted that the Indirect Parent Interview was administered in the manner earlier described for the Direct Parent Interview, with multiple quality control procedures and with double-blind experimental/rating controls included.

### Family Case Studies Measures

A subset of the families participated in family case studies over and beyond their participation in the basic HOPE followup study. The procedures used in those studies were earlier reported by Gotts and Jones (1981) as Appendix A of an AEL Technical Report. Review of the family case studies lies beyond the scope of the present data analysis and reporting; it is mentioned here in order to apprise the reader of its existence. Additional reporting on the family case studies is planned for a future time, as is true of portions of the HOPE data that fall outside the scope of the present effort.

### Direct Child Interview

A child self-report interview was constructed to parallel in many respects the Direct Parent Interview. Only two variables from this interview are of general interest and relevance to the academic career development of the HOPE children. These are further considered in Chapter III.

## Tasks of Emotional Development Test

The T.E.D. Test (Cohen & Weil, 1975) was administered and scored in the standardized manner. Cohen and Weil (1975) had, however, developed ranks by clinical judgment for only the first six of the 13 tasks, although they had published "nominal" and "obtained" scores for all 13. In order to use the T.E.D. Test, comparable ranks were established for Tasks 7-13, with assistance from Cohen and Weil. Furthermore, based on Paul's (1979) research, an Eriksonian scoring system was applied to the T.E.D. to complement Cohen and Weil's (1975) scoring procedures. Finally, the present author developed composite scores for each of the 13 T.E.D. tasks that incorporate data from both scoring systems; the sum of these 13 task scores constitutes another variable in the study.

## Direct Child Interview and T.E.D. Procedures

For most children, both of these were administered on a single occasion and recorded on cassette. Some children completed these in space provided at their schools and others in their homes in a private space. Administration and scoring were performed double-blind; quality controls were used as previously described for the parent interviews. In a few instances, a child completed only one of the two interviews due to scheduling problems or other reasons; the same was true of a very few parent interviews.

## School Behavior Checklist

The School Behavior Checklist (SBC) is a 138-item list of child descriptors that was put into its current form in 1978 for use in the HOPE followup study. It was originally used by Gotts, Adams, and

Phillips (1969) to study child personality characteristics in school. Subsequent studies led to the 1978 version, as summarized by Gotts in Johnson's (1976) handbook. The scoring system is fully objective. It includes 16 interpersonal dimensions that form a circumplex (Leary & Coffey, 1955) and from which Gotts et al. (1969) formed four empirical types (A-D), as identified in Chapter III, plus a partitioning of the circumplex into coping and noncoping types. Furthermore, as a part of the present study, empirical factors were extracted from the SBC data. These were found to resemble the four empirical types. Also present in the SBC are items representing four intra-psychic dimensions (see Chapter III); these, too, appeared in the factors. Differences between the circumplex/intra-pyschic perspectives and the empirical factors were also evident. In order to preserve relevant information from both approaches to scoring the SBC, selected variables were used from both in the overall data analysis. Teachers supplying the SBC data were unaware that the subject children had participated in HOPE and did not know who was in the experimental or the control groups. All objective data were computer scored and analyzed. The SBC data were available on nearly all the children who were located for the followup study and not just the approximately 210 children who completed the T.E.D. and Direct Child Interview and whose parents completed the two interviews.

## Other School Data

Data were obtained from children's cumulative school records, including information on grades earned, attendance, standardized testing results, any grades failed, vocational interests, and special needs or problems that had been a focus of special services provided.

School data were assembled during two time periods (during preliminary followup study in 1975 and at the beginning of the main followup in 1978-1979). Data were available for a variable number of years for different subgroups of the HOPE sample; for those who had been five years old during the first year of the HOPE experiment (the oldest group in the entire sample), data were available up through grade nine. Fewer years of school data were available for all younger children from the three years of the experiment. To further complicate the school data set, the state had changed its standardized testing program during the years that these children were going through school. This meant that data had to be adjusted and equated across the two different state test batteries. Moreover, the cumulative records had many missing data points for individual children. Thus, sample size would be unacceptably small for many desired comparisons of academic record and for examining relationships between the academic record and family characteristics.

In order to achieve maximum comparability of all sample cases over the school data, special data adjustment and summation procedures were developed through consultations with Robert Calfee (Stanford University) who had worked on this type of data system problem before. Within each child's data record, means, standard deviations, and slopes describing that record's data points were computed for each of the following kinds of information: ability tests, achievement tests, attendance, overall grades, and grades in five basic skills areas only. Decision rules were written to cover the acceptable circumstances under which the foregoing statistics could be computed; when these were not met for any of the kinds of information, the corresponding statistics were not computed, while all

all others (i.e., those that were acceptable) were computed. These derived variables are the ones used in the analyses reported herein. Many other analyses are of course possible with smaller subsets of the sample if one chooses to use instead the raw variables from which these composites were derived; that is another matter for others to perform in other times. Unfortunately, the lower-order, raw variables are necessarily available for different segments of the total sample, thereby rendering almost impossible the task for using them to reach overall conclusions about the range of family-child data that gives to the study the sweep and scope captured in the later chapters of this report. No matter, some of those raw school data analyses are worth performing. However, as illustrated by two doctoral dissertations done at West Virginia University during the followup study at a time prior to the availability of composite, derived school data, under supervision of C. Sunal, there are inferential risks as well. In those studies, using raw school data, with attendant loss of segments of the sample, major conclusions reached were in some instances at odds with those reached with the fuller data set at a later time. Based on more clearly adequate sampling considerations, it has seemed prudent to limit analyses in this report to those using the composite school data, as restrictive as that is on the variables left.

### Other Child Data

In the course of conducting the family case studies, additional child data were obtained, including temperament assessments via self-report. The findings from these are a part of the case studies and, as such, are not a part of the present study. They are mentioned here for completeness.

## Younger Siblings Study Data

In addition to the family case studies, a second substudy involved contacting a sample of younger siblings of children in the HOPE study. Some of these data were analyzed in 1982 and 1983 before final corrections had been made in the demographic data. The younger sibling data were maintained on cards and were scheduled to be incorporated onto the master data tape as card images 61-following. The contractual time period during which this data file work could be accomplished elapsed, however, with higher priority work on the files eclipsing it and preventing its completion. Subsequently in 1986 fire and water damage to the storage area where those cards were kept destroyed them. Extensive search has turned up only a few of the raw data listings for this substudy. Thus, it is impossible to reconstitute the data subset of 40 cases for further analysis. While the analyses performed on the sibling data in 1982 and 1983 are interesting in their own right, it is difficult to tie them in at this point with the main thrust of the study inasmuch as further analyses are precluded. It is a significant loss that these raw data now exist only as a few fragments of listings for selected data cards. On the other hand, had the present followup study not been underway, with data backups stored at the University of Rhode Island computing site, the entire study might well have been lost, including also all prior printouts that had been removed from storage to Madison, Indiana, due to their being used in performing the present work. That is, if this study had not been in progress, undoubtedly all of the remnants of the HOPE study would have been in the Huntington, West Virginia, site that was destroyed by fire in 1986. That loss would have been tragic, as will subsequently become apparent from the several exciting outcomes that are reported in later chapters. Currently a doctoral dissertation has been proposed at Indiana University, Bloomington, by Patty Tracy. When completed, it will have examined some of the original sibling study questions by pursuing the alternative route of looking at the 44 sibling pairs who are to be found in the main sample.

## Preschool Data

Three AEL staff members devoted hundreds of hours between 1975 and 1981 to salvaging data from the three years of HOPE's operation. Even though HOPE had resulted in approximately 50 technical reports, no thought or planning had been given to storing the data for future use beyond the writing of the reports. Worse yet, the program's evaluation staff changed their subject ID codes every year in confusing ways. Consequently, although all of the relevant data cards still probably existed in the storage areas that were combed, definitive identifications could not be made except for the data from the 1970-1971 program year. These, unlike the earlier years' data, were found in clearly marked card boxes and their ID code could be unequivocally matched to code sheets. In addition, files containing a few dozen raw test data records from the 1969-1970 program year and nearly 200 such records from the 1970-1971 year were located. In 1981, two staff members reworked these data in preparation for computer entry. Reworking was necessary because the evaluation staff had originally used raw test scores for their analyses rather than standardized scores. In this manner, a preschool data file was created that had not heretofore been prepared or analyzed. It is this source of preschool data that the present study reports and seeks to relate to later events in the lives of these children and their families. This can be done for both pretest and posttest data from 1970-1971. In contrast, the 1969-1970 data were too fragmentary for the present purpose, but they have been preserved and can be used in the future for more restricted analyses that may be of interest.

## Graduation Data

Beth Sattes of AEL oversaw the process of collecting all graduation lists from the participating county school systems during graduation years from 1981 through 1985, the years during which the three study cohorts were scheduled to graduate. This work was completed by late 1986, allowing for the inclusion of stragglers from the 1985 year whose graduation might have been delayed. Sattes also oversaw the process of collating all graduation lists with a comprehensive list of all the HOPE sample children. She compared her information with extensive information files that had been compiled by Pat Jones as she was conducting the home-school relations interviews that are described below. The final result of Sattes' work by October 1986 was a complete set of graduation data from which it could be determined for a substantial majority of the HOPE study sample whether they had graduated or dropped out. She was further able to identify in many instances that the "unknown" graduation status of missing cases was due to their families having moved away rather than to indeterminate causes. Overall, the status of graduation information is evaluated as very complete and satisfactory for performing inferential analyses. This could not be said for that portion of the original HOPE sample that was not located at the time of the followup study (1978-1980, for the purpose of locating additional cases); knowledge of the status of these cases was so fragmentary as to make it insupportable to analyze or include them in the present study. Nevertheless, enough has been learned about perhaps an additional 150 cases to make it possible to begin a search for them, as well as the basic HOPE followup sample of 342 cases, if there should be a future opportunity to follow up a sample of cases into the postgraduation phase of their lives.

## School-Family Relations Data

As a part of its School-Family Relations program, AEL revisited over 180 of the approximately 210 HOPE families previously interviewed in the main followup study. These later interviews were completed in 1981-1982 by Pat Jones, who had been one of our main interviewers in the 1978-1980 period and who had been the field worker for the family case studies. The home-school interviews were comparable to those conducted in other sites as part of the same program. Their character and contents can be studied in Gotts and Sattes (1982). The interview's purpose is to learn of a family's experience of home-school communications through both formal and informal channels as to the occasions, circumstances, contents, and results/outcomes of those communications. It further explores family attitudes toward the schools, their evaluation of the school's communication efforts, and their perspectives on how their child is doing in school. Overall reviews of the interview further allow a rating to be made of each family's interest and involvement in the child's learning. When Jones carried out these interviews, she also asked questions about the child's progress toward graduation and, if the child had graduated or was no longer in school, tried to determine what the child was currently doing. The data from these latter questions were too fragmentary for formal analysis, but the data from the school-family portions was used in analyses that appear in this report.

Treatment Condition

The final category of data used in the study is the HOPE treatment itself. Members of the sample were assigned either to the experimental group (i.e., those receiving home visitation) or the control group (community controls who had access to the same daily television series but no home visitation). Thus, the treatment being analyzed is child-rearing assistance to the family via home visitation versus no planned and systematic home visitation. The control condition is stated in the preceding manner to acknowledge that all families probably receive some informal and unplanned (i.e., nonsystematic) home visitation about child rearing from extended family, neighbors, close friends, day care providers, physicians, and the media. Few parents in the rural and small town population from which the sample is drawn are lacking these informal sources of assistance. What makes the HOPE treatment special is that the child-rearing assistance was delivered systematically based on a planned curriculum over an extended period of time. Its objective was to make parents more competent and confident about their ability to deal with child development and with parenting support of that development, with a special focus on how child development relates to academic success and how parents can contribute to their child's success. While there was also a classroom treatment aspect to the HOPE experiment, it is not considered in the followup study for reasons previously articulated (Gotts, 1983). Further information on classroom effects is available in the several HOPE technical reports in ERIC. (See Gotts, 1983, for citations; complete listing available from AEL.)

In the HOPE study sample, for nearly all analyses performed, the experimental group outnumbers the control group about two-to-one. At its maximum size, the experimental group includes 238 children, the control group 104. However, for various analyses, these numbers are substantially reduced. For example, information from the complete set of 1978-1980 parent and child interviews with experimental subjects ranges from 152 to 163; among the controls from 41 to 50--the exact figures depending in each instance upon the number of valid, scorable records available for each variable. That is, a record was represented in each variable for which it supplied usable information meeting the minimum standards set for that variable and, contrariwise, the record's data were not thus represented in variables for which it failed to meet established criteria. This method of data inclusion allowed for the preservation and use of the largest possible amount of reliable data but carried with it the disadvantage of variable numbers of subjects as illustrated by the example of the sample size ranges given above. The result of variable numbers of cases in analyses of similar types is, necessarily, variable degrees of freedom affecting statistical tests of significance. In order not to dwell excessively upon the mechanics of statistical testing occasioned by this, some simplification of reporting has been effected in the later chapters of this report. When this has been accomplished, it has been to streamline the reporting and thus to bring greater clarity to the presentation of findings. Whenever this editorial technique is exercised, it is explained in the same textual or tabular location.

# III. MAJOR DERIVED VARIABLES: CHARACTERISTICS AND MEANING

For convenience of cross-reference to the measurement procedures from which they were derived, variables are presented and discussed in this chapter in the order that the source instruments were reviewed in Chapter II.

Names were assigned to variables on the grounds of prior usage and custom; newer variables were named to achieve conceptual clarity in light of such considerations as theoretical and operation procedures used to define them, factor composition, correlates, etc. Definitions are provided to the extent that these may further specify the constructs or empirical referents under consideration. Inevitably, in the process of deriving so massive a set of variables, some will have turned up "reflected" from their customary or perhaps preferred form, such that high scores on the variable are not those that might intuitively be anticipated by a nonspecialist reader. Social class provides one example of this, with higher scores on the commonly used scale being associated with actually lower social status. This usual operational meaning has been retained for social class but at the inconvenience of the reading needing to recall this fact in order to understand various statistical relations. Thus, a negative relationship between intelligence and social class means that higher intelligence (the high end of that measure) is associated with higher social class (the low end of that measure). This chapter clearly lays out these kinds of information for ordinal, interval, and nominal (classificatory) types of data, as is appropriate to each of the variables to be considered. The reader will in this way be prepared to check back in this chapter for the information needed to interpret the meaning of findings later reported in tabular or summary form, for which discussion in text is more limited than needed to satisfy the individual reader's interest or requirements.

Derivation of the study's major variables, including the empirical rules for weighting and combining lower-order variables, was accomplished by the study's author largely over the period 1978-1983--all being done prior to the onset of the present three-year study, except for the graduation data and some derivatives of the T.E.D. Test. John Douglas, statistical consultant and SPSS (Statistical Package for the Social Sciences) program specialist for the Indiana University Wrubel Research Computing Center, provided assistance with the computer work employed in this process: data entry, transformations, statistical analysis used for decisionmaking, scale construction, intermediate storage, and eventual assembly of the data into a fully collated and SPSS-compatible master file on tape. Mickey Stentz and David Lambert of the same facility gave similar assistance for briefer durations of time prior to Douglas's involvement. The active participation of these three as consultants regarding the derivation of major variables attained a collaborative quality through those years. Their participation compensated for the absence of a colleague, after Ram Singh, who had served in this capacity for two years, left the study in 1980 to join the staff of the U. S. Department of Treasury as a demographer. In this way, the work of these three individuals, and most particularly of John Douglas, helped to assure that all derived variables were conceptualized, created, checked for reliability and evidence of validity, and cross-checked for accuracy of computing formulas by both the senior researcher and at least one other qualified quantitative specialist.

Nevertheless, a few errors and omissions of computation eluded the thorough scrutiny of all involved. The great majority of these have been corrected during the less frantically paced work of the past three years with the help of Richard Purnell, an educational research methodologist at the University of Rhode Island. He has been the principal statistical and computing consultant to this latest phase of the HOPE followup study. These facts have been reviewed here in order to indicate the care that has gone into the creation of all derived variables prior to their use in the statistical analyses herein reported.

A final phase of this process has been to verify for each newly derived or significantly adapted/revised variable that it performs, in a correlational sense, in the manner needed to suggest its convergent and discriminant validity. Data are presented in Chapter IV from efforts to demonstrate the construct meaning of newly derived or formed variables. Questions along the way have been answered about whether certain more widely used variables--such as Kohn's Schedule of Parent Values (1969)--might need to be combined in different ways to work with the population. That is, it was not simply assumed that existing scales could be used straightforwardly without first reverifying and essentially revalidating them if necessary. The result of these efforts was that notable changes were made in the composition of some of the scales borrowed from others, as will be considered subsequently in the present chapter.

## Direct Parent Interview

Academic orientation (Part I). AO is a factor-derived combination of four variables, each of which is based on two or more interview questions or part questions (i.e., 13 responses evaluated). Its subparts were scored exactly as by the Fels researchers and subsumed under their four categories. Based on factor solution, variables were weighted in proportion to the variance that they shared with the underlying factor (this method of weighting was followed in all solutions unless otherwise specified). The four variables in descending order of contribution are academic expectancy, academic attainment value, academic minimum standards, and academic satisfaction/dissatisfaction. Weights ranged from .5465 through .3037. Thus, the empirical meaning of AO is a parent's expressed academic expectancy (e.g., "What kind of grades do you expect __________ to get when (he/she) is in high school?"), academic attainment value (i.e., importance attached to doing well in school), academic minimum standards (i.e., the level of performance below which the parent would experience dissatisfaction), and satisfaction/dissatisfaction with the child's achievement performance in school subjects and other academic areas. AO is treated in the study as a dependent variable with reference to the HOPE treatment and as an independent variable in relation to various school outcome indicators (e.g., grades, achievement, and graduation). The treatment of AO as an independent variable with respect to grades is not altogether satisfactory, since it implies a uni-directional effect from parent to child and ignores the converse: that child grades have historically influenced parents' AO. The latter is also true. An approach that seeks to overcome such data dilemmas is causal modeling. Had the HOPE followup been planned in 1968 as a prospective study, with a measure of AO administered at that time, causal modeling would have been a possible and appropriate approach. This possibility was explored through consultations with John Bergen before 1983. Finally, it was decided that the data would not meet the assumptions of causal modeling. Thus, AO is treated as an independent variable with the understanding that the inability to illustrate its reciprocal interaction with grades is a limitation of the study. The limitation is acknowledged here to restrain interpretations of subsequent reports of findings. In this connection, it will be understood that this approach is, again, not altogether satisfactory, but is a responsible handling of the inherent limits to the causal inferences that can be put forward.

Parental support of learning at home through school contact and encouragement (Part I). Support is a newly derived higher-order variable based on factor studies. It combines in descending order of contribution: degree of academic role responsibility (i.e., taken by parent for providing learning experiences and materials outside the school), school contacts (i.e., with child's teacher relative to schoolwork over the past year), and promotion of child's autonomy and responsibility in academic and vocational areas (versus acting in a prescriptive or regimented manner regarding goals). Support draws upon ratings of 12 questions and subquestions. Weights for the three preceding components of Support range from .5811 through .1991. Clearly the first variable outweighed the other two in importance--thus the name of the major variable was designated as parental support of learning or, briefly, Support.

Parental nurturance/affection (Part II). Nurt is made up of three major Fels variables: love and affection (open communication and mutual enjoyment versus lack of verbal or physical expression of affection), acceptance (contra rejection), and nurturance and protectiveness (versus not giving help). Nurt is based on 18 questions and subquestions.

Weights assigned to its three components range from .3156 through .1980. Nurt is akin to nurturance/affection, as this is usually understood within major theoretical models of child-rearing dimensions. As such, it has often been counterposed with control or dominance as a second and usually orthogonal dimension (e.g., Schaefer, 1971). This second dimension is also represented in this data. Both are factor derivatives.

Parental control/dominance (Part II). Cont is based on three major Fels variables: dominance-restrictiveness, regimented or rule giving (versus promoting autonomy and responsibility), and hostility and punitiveness. The three underlying variables are drawn from 15 questions and subquestions. Weights assigned to the three range from .4722 through .2250.

Child health (Part II). Health is a simple variable based on two unweighted questions that came together in a factor analysis. These are based on similar questions and scoring procedures to those used in Mercer and Lewis' (1977) system of assessment. One question asks the parent for a rating of the child's overall health, and the second is the reflected form of a brief inventory of health problems.

Parent values internal orientation (Part III). Internl is also known as self-directed (in contrast to other-directed or group-oriented). The scale is based on two Kohn items indicating the desirability of the child having self-control and not emphasizing the desirability of the child getting along with other children (i.e., reversal for the value of "getting along"). These items are unweighted.

Intellectual dependence (Part III). IntDep is constructed as a conceptual contrast to intellectual autonomy. IntDep is made up of three weighted Kohn items that were factor-derived, as were the two items of Internal. In the IntDep factor, two items negatively loaded and one positively loaded. In descending order of factor contribution, the items are parent placing low value on the child having good sense and sound judgment (-), low value on the child being interested in how and why things happen (-), and valuing the child's obeying his parents well (+). Weights assigned range from .5387 through .1741. It is to be noted here that these factors (i.e., Internal and IntDep) do not directly correspond to Kohn's usual methods of summarizing parents' responses to his instrument. An attempt was made to replicate his scoring as well, but the resulting indexes did not hold up in the sample as internally consistent (in the Kuder-Richardson sense) and, therefore, could not be used. Nevertheless, the Internal score is congruent with some of Kohn's theorizing about the structure of parental values.

Home environment scale (Part IV). HES is basically as described in Chapter II and cross-referenced to Gotts (1987). This version of the HES samples, through a variety of questions, the parent's contribution to the child's learning through both formal and informal means in the home and community via encouragement, special lessons, personal modeling, trips, provision of selected printed materials in home, TV guidance, direction interaction, help with homework, and emphasis on the importance of formal education. This version of the HES retains the same meaning and properties found in the scales from which it was derived, while being adapted to the circumstances of parents of upper elementary to junior high-age children, in contrast to the applicability of earlier versions to younger children. Interestingly, items describing the provision by parents of other skill-building, craft, and learning materials other than those in print did not add to HES scale for this age-level child, although lists of such items had been used with apparent success in the versions geared to parents of younger children. Accordingly, this list of other learning materials was omitted from the scoring of the AEL version of the HES.

Parent agrees with rejecting and disciplinarian perspectives (Part VI). RejDisc represents not self-description but agreement with separate paragraphs describing protective, disciplinarian, and rejecting approaches to or styles of child rearing, with the former two being highly and almost equally important. Weights for the three variables ranged from .5607 through .3647, with protective and disciplinarian contributing almost equally.

Parent agrees with and identifies self as having indulgent style (Part VI). Indulge is made up of three variables: agreeing with indulgent style, attributing indulgent style to self, and saying that a disciplinarian style is least like the respondent. Weights for the three variables range from .7408 through .3592.

Parent identifies self as not protective but as rejecting (Part VI). Reject is based on almost identically weighted denial of self as being protective and endorsement of self as rejecting, with a more minor emphasis on agreeing with a rejecting viewpoint. The minor importance of the opinion held (i.e., agreement with rejecting viewpoint) contrasts with the major importance of the self-attribution of a rejecting style within the same factor (N.B. all three Part VI style derivatives are factor derived). The co-occurrence of these facts within the Reject variable clearly illustrates the conceptual distinction between an opinion held and a respondent's ability to self-report with a degree of independence from the opinion held. This fact lends some support to the decision to format this version of the Pumroy instrument along these lines. Weights range from .6463 through .2478 for the parts just discussed as differentiated by respondents.

Pumroy dimensions. In order to further clarify the meaning of the preceding three variables (RejDisc, Indulge, and Reject), the following abbreviated definitions from Gotts (1988a) are offered for the components that would make up a pure style. As the factor structure suggests, however, pure forms of the styles are not as characteristic in this population as are combinations of them.

Indulgent parents have a relatively more child-centered, generous and loving style--but not a style to be confused with indifferent, permissive, or laissez-faire attitudes. These latter attitudes, on the contrary, do not necessarily connote high affection or emotional involvement. Nevertheless, in common with the latter attitudes, indulgent parents indicate an unwillingness to set limits and regulate the child's behavior. They enjoy and cater to them, while not restricting.

Rejecting parents engage in obviously hostile expression toward their children. Their hostility is mingled with their disciplinary actions; inflicting pain rather than correcting as such is their apparent goal. They arrange to limit their contact with their children. They anticipate some resistance and willful disobedience by their children, which well may be reciprocated by their children, as expected.

Disciplinarian parents highly value child obedience and conformity. They freely discipline in a consistent and fair manner gauged to produce conformity. While they may act autocratically, they are not particularly hostile. They seem to rush their children toward maturity, meaning conformity to conventional standards. Their children's obedience is viewed as a badge of their own success as parents.

Protective parents see the world of childhood as a minefield of risks and dangers. Physical dangers, bad influences, lost opportunity, wrong choices, and even being subjected to the normal stresses of everyday living are found among these parents' concerns regarding their children. Because they see the world as threatening, they apparently adopt a style of sheltering, performing the "risky" things in behalf of their children, closely monitoring, perhaps "infantilizing" them by preventing developmentally appropriate actions, and behaving intrusively by insisting on knowing their children's thoughts and feelings as well as their actions. These careful people intend to protect their children from harm by engulfing them in a hothouse atmosphere. Averting harm rather than actualizing potential is seen as the great parenting challenge.

Demographic variables (Part VII). All of the Direct Parent Interview variables already presented take their names from the high-score ends of their respective scales and are to be interpreted accordingly. In contrast, the directional meaning of codes assigned to demographic variables often requires further definition. This is provided for each of the variables that follows in this section.

Social class or socioeconomic status (SES) uses the Hollingshead Two Factor Index of Social Position. (See Miller, 1977, for a concise presentation.) The two factors are occupational level (X 7) and education (X 4). In Hollingshead, both education and occupation are represented on seven-point scales, for which the low end (1) indicates higher status. When the weights are applied, as indicated above by the respective multipliers, a possible SES range from 11-77 is created, with 11 meaning the highest status. The Hollingshead method of assigning an SES value, as utilized by AEL from 1968 onward, used education and occupation of head of household for all computations. This practice was followed to retain comparability within the database. Keying in on head of household did not preclude a family designating either parent as head of household, and it permitted assignment to single-parent families if the one parent was employed or had an occupation. This method, however, resulted in the loss from the final database of a small number of single-parent families in which the parent had no occupation--for those analyses in which SES is entered as a quantitative variable. In other analyses that do not use SES (e.g., in cross-tabulations and chi-square analyses of graduation and school promotion/retention) these cases are retained.

To summarize the effect of this loss of information, a special study was carried out of the 13 families (out of 213 families in the full interview study) for whom SES could not be computed. None had siblings in the study. Nine were from the experimental and four from the control group. The mean grade point and parental academic orientation of the nine experimental families did not differ from those of the full experimental group; the mean grade point and parental AO for the four control families were lower than those of the full control sample. These crucial indicators suggest that for most purposes the loss of the 13 cases would have created little change or a very small bias, with the poorer functioning of the four control cases resulting in a conservative bias, i.e., a bias that would not often incorrectly lead to conclusions that the experimental group's performance surpassed that of the control group. The 13 cases are included in the specific graduation analyses by chi-square. On the other hand, despite their superior grade point and parental AO, a somewhat disproportional number of the experimental cases with SES missing dropped out of school rather than graduating. Consequently, any analyses of graduation results from which these cases are missing could produce small inaccuracies in a nonconservative direction. This occurs in multivariate procedures such as discriminate analysis and two-way analysis of variance, in which the cases with missing data are deleted in their entirety by the "missing values" procedure. By contrast, the chi-square and simple correlation analyses permit the case to be retained except for the variable(s) directly affected. The reader will be alerted as necessary to these considerations in the context of particular analyses reported in later chapters.

*Sex of child* (Sex) is a simple categorical variable with boys assigned *1* and girls assigned *2*.

*Chronological age* (CA) is recorded as the child's age in months as of May 1, 1978.

*Degree of urbanization of residence* (Urbaniz) represents the most rural condition at its low end and the most urban at its high end.

Family composition (FamComp) uses 1 for nuclear family, 2 for reconstituted family, and 3 for single-parent family.

Family size (FamSize) is actually the total number of children in the family, of whatever degree of relationship. The true name for this is sibsize, but this is a so little used term as to be confusing, and further it is often limited to a closer degree of relationship than is represented in reconstituted and some single-parent families.

Birth order (BirthOr) is the child's ordinal position within the family. A child's twin is not considered in birth order assignment.

Favorability of life circumstances index (FavIndx) is a factorially complex, empirical index that combines a number of disparate life circumstance variables--usually after simplification recoding--based upon multiple studies and theoretical and pragmatic considerations that assign to each variable a role in child development. Following the recodes, each variable in the mix has been coded such that its high end suggests conditions favorable to child development and its low end less favorable conditions. The variables combined in FavIndx are marital status of mother, degree of urbanization, family size, subjective SES, number of adult-oriented organizations and number of child-oriented organizations to which respondent belongs, degree of religiosity, family occupational mobility, and parent's health. Other variables were tried in the index and deleted because of poor fit. Notably, the education, occupation, and income of the family have been omitted from the index, so that the relationship of FavIndx to SES could be examined. It is expected that a future publication will further report on FavIndx.

### Indirect Parent Interview

*Sum of Eriksonian ratings* (Erikson) is the theory-based variable representing a parent's solution to child development challenges sampled through simulation via the telling of structured stories.

*Parental generativity as trust promotion* (GTrust) is the sum of all categorical ratings for the drawings representing the trust issue, with the seven categorical components weighted in proportion to their contribution to the trust factor. It should be noted that the Eriksonian ratings for the trust drawings appear as one of the categories in the sum.

In a fully analogous manner, generativity scores were developed for the remaining four childhood issues depicted in the series of drawings. These are respectively called: *GAuto*, *GInit*, *GIndust*, and *GIdent*. These five generativity components were thought to be potentially useful for investigating, in the present and future studies, the construct validity of the generativity measurement.

*Overall parental generativity as a single factor* (Singfac) is the sum of GTrust through GIdent, and represents a general index across all child age-level issues and all formal categories from perception through comprehension of child development and including specific Eriksonian appraisals. The question of whether Singfac or the simple and more direct Erikson ratings best represents generativity was left to be settled as an empirical issue.

### Direct Child Interview

*Self-concept* (SlfConc) is based on the unweighted sum of nine self-reference statements. Five of these are positively stated; four are stated negatively. The positive items have been reflected before summing with the negative items. The result is that a low score means a positive self-concept. From a content perspective, three items deal with school issues and six with more general issues.

*Academic-occupational* (AcadOcc) consists of four weighted items, in descending order: level of schooling child wishes to complete, how far child expects to go in school, occupation child expects to enter, and least amount of schooling child feels is needed. The first two items are nearly tied and in importance far exceed the second two. Weights range from .76 through .22. This variable corresponds in content to the parent's academic orientation. AcadOcc is factor derived as is SlfConc.

### Tasks of Emotional Development Test

*Psychosocial maturity of child's task perception* (MatPerc) is the sum of the Eriksonian ratings made for children's T.E.D. Test stories. Each story was judged as relating to either one or two Eriksonian issues; ratings for these issues only were included in the sum. Trust was scored for cards *2* and *8*; Autonomy for *6*, *9*, and *10*; Initiative for *1*, *2*, *5*, *6*, *8*, and *10*; Industry for *4*, *7*, and *11*; and Identity, *12* and *13*. A high rating signified greater maturity. This variable was developed to be somewhat parallel to the parental Eriksonian ratings.

Individual task scores were also computed for each T.E.D. photograph-generated story. This was done in recognition of the tendency in the personality literature over the past 20 or so years to move away from more global personality constructs, such as psychosocial maturity, toward more situation-specific constructs. The T.E.D. cards lend themselves to such a situational perspective presenting, as they in fact do, 13 different developmental issues, each generating problem-engagement within a different behavioral context of personal know-how, expectations, and so on. The 13 task scores were developed as weighted sums of the formal scoring categories: perception, outcome, affect, and motivation (Cohen & Weil, 1975), with the addition of applicable Eriksonian ratings. A complex formula was required for each task score's computation to merge Cohen and Weil's (1975) affect categories $C^1$ and $C^2$ into a single dimension and to do the same for motivation $D^1$ and $D^2$, before combining them with the remaining ingredients. The defensibility of adding these variables in this manner was separately verified for each of the 13 tasks by developing within each task a series of scatter plots and linear regression equations that confirmed for each variable entered into each task sum that it performed appropriately relative to the sum. This part of the work was all completed by late 1983, prior to the present effort. Findings in this area of work call for the preparation of a completely revised T.E.D. Test Manual to be used in computing the task indexes. Cohen and Weil have tentatively agreed to collaborate with the present writer in developing a new manual, but circumstances have not yet enabled this collaboration to proceed beyond planning.

Task 1 through Task 13 are the labels used to indicate the T.E.D. Test issues, in order: peer socialization, trust, aggression, attitude toward learning, resistance to temptation, separation, identification with worker/helper role, care of the young (Cohen & Weil's "sibling rivalry"), acceptance of adult enforcement of limits, acceptance of parents' expression of mutual affection, response to discipline for disorderliness or messiness, self-concept, and heterosexual interest. We found it necessary to relabel some of the tasks to match the qualitative nature of the typical responses to the tasks by these late childhood to early adolescent respondents--contra Cohen and Weil's younger respondents. The author has since that time administered the T.E.D. Test to approximately 100 young adults and found that the qualitative shifts of story content among young adolescents continue on in the same direction of changing emphasis in adulthood from that typically observed in children. Low scores are more favorable on all 13 tasks.

## School Behavior Checklist

Coping/noncoping style in school (Cope) is a categorical variable that designates copers as 2 and noncopers as 1. Only those children who are classifiable as fitting into one of the quadrants of the Leary-Coffey model (Gotts et al., 1969) are classified by Cope. Those fitting into quadrants D and C are designated as copers; those in quadrants A and B as noncopers. The classification was based on actual quadrant scores. Later factor scores were developed to represent the interpersonal and intra-psychic information inherent in the school behavior checklist. These were used in current empirical work in preference to the rationally developed quadrant and intra-psychic scores, while basing Cope on the quadrant procedure. The rational scale, Symptoms of Depression, is an exception to the foregoing statement; it is retained in the current analyses.

Symptoms of depression (Depress) is the sum of 15 weighted child descriptors (examples: hardly ever smiles, corners of mouth turn down as if sad).

The following School Behavior Checklist derivates are all factor score-based variables. The assigned variable name in each instance indicates the high score end of the variable. Item weights are made proportional to loadings.

Aggressive (Aggress) is the sum of 23 items (examples: belligerent, stubbornly resists the will and authority of the teacher). An aggressive, stubborn, defiant style is suggested by the item pool.

Conventionally adaptive (ConAdpt) is based on 15 items, with an overall conforming and successfully coping style shown (examples: reliable, can be depended on).

Anxiously dependent (AnxDep) draws together 19 child descriptors (examples: upset by small setbacks, fearfulness).

Egocentric defensiveness (EgoDfns) is a brief scale of five items (examples: suspiciousness, overly responds to flattery or social approval).

Personal disorganization (Disorg) uses 14 items (examples: inattention, is disorganized in his/her thinking). This variable includes components often cited as being present in behaviorally disordered children.

Shy and overly serious (ShySrs) consists of seven items that suggest a temperamentally-based characteristic (examples: bashful, unsocial, or withdrawing).

Blunt and manipulative (BlntMnp) sums 16 items that, again, may suggest a tempermentally-based stance (examples: outspoken, tries to influence others).

Restlessness (Restles) contains only five items. These suggest a motor manifestation of an underlying tension (examples: is restless or tense, disorderliness in class).

Active defensiveness (ActDfns) is an eight-item scale representing the usually understood sense of defensive behavior (examples: explains away personal shortcomings or failure, makes excuses for failures and justifies behavior).

Agitation (Agitate) contains only five items that appear to be motor equivalents of anxiety (examples: exhibits constant movement of fingers or hands with persistent perspiring of parts of body, is accident prone), or may relate to hyperactivity manifestations.

Antisocial hostility (Antisoc) is a group of six items that suggests behavior directed against others in an angry or hostile manner that is less passive-aggressive (e.g., as is Aggress) and more clearly antisocial (examples: destroying school materials, fights with little provocation).

## School Data from Cumulative Records

Grade repeated (Repeat) assigns a *0* to someone who repeated no grades and a *1* to someone who repeated one or more grades.

School attendance (Attend) expresses the mean percentage of the student's attendance in all grades completed through 1977 (i.e., the data were assembled in the 1978-79 school year, for which results were not yet available).

Achievement test result (Achieve) is the mean standardized achievement test score for grades three and six combined, with Comprehensive Test of Basic Skills and Educational Development Series scores being combined, when required, after being transformed to a common metric of national norms expressed in standard score form with a mean of 0.0 (sigma-type scores).

Ability test result (Ability) was transformed from the same sources as Achieve, in a completely comparable manner, into the same sigma metric. A difference, however, was that additional data points were available for many of the children from the preschool period (i.e., Peabody Picture Vocabulary Test) and the early primary period (i.e., Primary Mental

Abilities Test). These data points were merged with the third and sixth grade testings. It will be well to mention for both Achieve and Ability that sigma scores take on both plus and minus values. For this reason, low scores on either of these will have minus values.

Grade point average (GPA) is the mean of all data points for each child across all completed school years, but limited to performance in the basic skills areas: reading, writing, arithmetic, spelling, and English, with these merged into a basic skills composite. The scale used was A = 5...F = 1.

Attend, Achieve, Ability, and GPA are all highly stable indexes comprised of multiple data points over time. The method of eliminating the problems of missing data points by this complex series of calculations has, thus, produced highly reliable school indicators. These means, on the other hand, rule out the possibility of reflecting across-time trends. For this reason the standard deviation and the slope were computed for each of the four indicators except the standard deviation for Achieve, which had only two data points. Similarly, for any individual case, a slope was computed only if two or more data points were available and a standard deviation only if three or more data points were available. The slopes and standard deviations for these variables were examined extensively by correlation in relation to the main child and parent data and were found to convey no useful information, whereas the means related to other study variables in predictable ways. Subsequently, using the means for Attend, Achieve, Ability, and GPA did not result in any meaningful information being lost regarding either data point trends across time or variability among data points.

## School-Family Relations Interview

Number of child's school activities (ChActiv) is the sum of named extracurricular and special school activities in which the student is engaged. It is restricted to a range of zero through four, with up to four being counted. For students who had graduated just before the parent was interviewed, this was a retrospective report of the senior (or final) year of school attendance.

Frequency parents attend (ParAtnd) is the frequency of parent attendance at scheduled school activities of whatever sort (e.g., athletic events, community education, conferences).

Frequency personnel contacts (Contact) is the frequency with which parents have either formal or informal contacts with school personnel, including teachers and others.

ParAtnd is an estimate that is scaled 0 = never through 5 = very often. Contact is the number separately mentioned, which ranges from zero through four (limited to four as for ChActiv).

Child's average grades (ChGrade) is a parent's statement regarding the question, "What grades does your (son/daughter) make--on the average?" Plus and minus grades were considered when coding: A = 8...D-/or below = 1, Unknown = 0. This statement is of interest, since it is from the year 1983, while all cumulative record school grade information is available only up through the 1977-78 school year.

Academic satisfaction (AcadSat) is a rating ranging from 3 = satisfied through 1 = dissatisfied.

Academic expectations (Expects) is rated based on other comments that are given to the "satisfaction" question about 90% of the time. These could be coded using the same scale as that used for ChGrade.

Interest/involvement (IntInvl) is an overall rating made of the parent's apparent interest and involvement with the child's school performance and learning, based on the entire interview (High = 3...Low = 1; Cannot tell = 0).

## Preschool Data

Peabody Picture Vocabulary Test (PPVT-IQ) is the June 1971 posttest score. This is available only for participants in the final year of the HOPE experiment, 1970-1971, as is true for all other preschool data in this section. PPVT-IQ scores were available for other occasions but are not included here in order to establish the preschool data set as being from a single testing occasion.

Frostig Test Perceptual Quotient (FrostPQ) was computed for the Marianne Frostig Developmental Test of Visual Perception. The Frostig is actually formed from a series of tasks calling for problem-solving via the joint use of visual perception and fine motor (hand-eye) performances. Probably early conceptual development and verbal mediators play a role in the test, as do control of impulses and self-regulation of attention--all in addition to visual perception, as such.

Illinois Test of Psycholinguistic Abilities (ITPA-IQ) is an individually administered battery of measures of various psycholinguistic functions. The 1968 Revision of the ITPA was used. The ITPA-PLA correlates well with the Stanford-Binet Intelligence Scale, Form L-M mental age. PLA or psycholinguistic age is a construct similar to mental age.

We have used the term *ITPA-IQ* to refer to what is called the ITPA-PLQ or psycholinguistic quotient by the ITPA's developers (see Paraskevopoulos & Kirk, 1969). When occasion calls for reference to the ITPA subtests, for convenience they are labeled ITPA-1, -2, and so on, and named only as required in discussion.

### Graduation (HSGrad)

*HSGrad* codes confirmed graduates *2*, dropouts *1*, and unknown or equivocal cases *0*.

*Treatmt* is a categorical variable that represents all HOPE participants who received home visitation as *1* and control cases as *2*. This means that when treatment relates negatively to a favorable indicator, the treatment is seen as being positively associated with the favorable event.

### Missing Data

Data have been uniformly coded to permit identification of missing, unknown, or uncodable data, by the use of zero and blank conventions. For all analyses reported in later chapters, missing data have been appropriately identified and are therefore excluded from consideration in all computation. A special case of the missing data problem was discussed earlier, i.e., the fact that missing data from a single variable can result in an entire case record being deleted from certain types of analyses. The reader is assured that such occurrences will be properly interpreted in the full context of their analysis and discussion. On the other hand, the reader is advised: lifting reported findings from this fuller context could at times be significantly misleading and should be approached with caution.

## Summary of Variables in the Study

To assist in the reading of this report, the main variables discussed above are next presented alphabetically as a summary list. Minor extra-list variables may be mentioned in text.

Additional properties and characteristics of major variables will be presented in the next chapter, together with evidence for construct validity.

Major Variables

| Variable | Page Ref. | Description of Variable |
|---|---|---|
| Ability | 43 | Mean Ability Test (preschool through grade six) |
| AcadOcc | 39 | Child's Academic-Occupation Perspective (Lo = Hi) |
| AcadSat | 45 | Parent's Satisfaction with Child's Academic Performance |
| Achieve | 43 | Mean Achievement Test (grades three and six) |
| ActDfns | 42 | Child Exhibits Active Defensiveness |
| Aggress | 42 | Child Displays Aggressive (often passive-aggressive) Style |
| Agitate | 43 | Child Has Motor Agitation Suggesting Anxiety or Possible Hyperactivity |
| Antisoc | 43 | Child Presents Antisocial Hostility |
| AnxDep | 42 | Child Is Anxiously Dependent and Self-Effacing |
| AO | 27 | Academic Orientation of Parent for Child's Performance |
| Attend | 43 | Child's Mean School Attendance (grade one and following) |
| BirthOr | 37 | Child's Ordinal Position Among Siblings (higher = later born) |
| BlntMnp | 43 | Child Has Blunt and Manipulative Style |
| CA | 36 | Child's Chronological Age in Months |

| | | |
|---|---|---|
| ChActiv | 45 | Number of Child's Extracurricular Activities (school related) |
| ChGrade | 45 | Parent's Statement of Child's Grades (from 1983 interview) |
| ConAdpt | 42 | Child Behaves in Conventionally Adaptive Manner |
| Cont | 30 | Parental Control/Dominance |
| Contact | 45 | Frequency of Parent's Contacts with School Personnel |
| Cope | 41 | Child's Classification as Coping (2)/NonCoping (1) |
| Depress | 41 | Symptoms of Depression Evident in Child (minus values possible, but Hi = Hi) |
| Disorg | 42 | Child's Degree of Personal Disorganization |
| EgoDfns | 42 | Child's Egocentric Defensiveness |
| Erikson | 38 | Sum of Parent's Support of Child's Accomplishment of Eriksonian Tasks |
| Expects | 46 | Parent's Academic Expectations for Child |
| FamComp | 37 | Family Composition (Nuclear family = 1, Reconstituted = 2, Single parent = 3) |
| FamSize | 37 | Family Size (exclusive of parents) |
| FavIndx | 37 | Index of Favorability of Family's Circumstances for Child Development (complex) |
| FrostPQ | 46 | Frostig Perceptual Quotient--Developmental Progress Indicator |
| GAuto | 38 | Parent's Promotion of Child's Autonomy (Lo = Hi) |
| GIdent | 38 | Parent's Promotion of Child's Identity (Lo = Hi) |
| GIndust | 38 | Parent's Promotion of Child's Industry (Lo = Hi) |
| GInit | 38 | Parent's Promotion of Child's Initiative (Lo = Hi) |
| GPA | 44 | Grade point Average Across School Career (grade one-onward; 5 = A...1 = F) |
| GTrust | 38 | Parent's Promotion of Child's Trust (Lo = Hi) |
| Health | 30 | Index of Child's Health (Hi = more healthy; minus numbers possible) |

| | | |
|---|---|---|
| HES | 31 | Home Environment Scale--Favorability for Promoting Learning |
| HSGrad | 47 | Graduation from High School (2 = grad, 1 = nongrad) |
| Indulge | 32 | Parent Endorses Indulgent Child-Rearing |
| ITPA-IQ | 46 | Illinois Test of Psycholinguistic Abilities-IQ |
| IntDep | 31 | Parent Encourages Intellectual Dependence |
| Internl | 30 | Parent Values Child Having Internal Orientation (self-directed) |
| IntInvl | 46 | Parental Interest-Involvement with Child's School Performance and Learning |
| MatPerc | 39 | Psychosocial Maturity of Child's Perception of Emotional Development Tasks |
| Nurt | 29 | Parental Nurturance and Affection |
| ParAtnd | 45 | Frequency Parent Attends School Activities |
| PPVT-IQ | 46 | Peabody Picture Vocabulary Test-IQ |
| RejDisc | 32 | Parent Agrees with Rejecting and Disciplinarian Perspectives |
| Reject | 32 | Parent Identifies Self as Rejecting and as Not Protective |
| Repeat | 43 | Child Repeated One or More Grades in the Early Primary Years (No = 0, Yes = 1) |
| Restles | 42 | Child Exhibits Motor Equivalent of Underlying Tension as Restlessness |
| SES | 35 | Social Status/Socioeconomic Class (Lo = Hi) |
| Sex | 36 | Sex of Child (Girl = 2, Boy = 1) |
| ShySrs | 42 | Child Appears Shy and Overly Serious |
| Singfac | 38 | Overall Level of Parental Generativity (Lo = Hi) |
| SlfConc | 38 | Child's Self-Concept by Verbal Report (Lo = Hi) |
| Support | 29 | Parental Support of Learning at Home Through School Contact and Encouragement |

| | | |
|---|---|---|
| Tasks 1 to 13 | 40 | Child's: Peer Socialization (Task 1)<br>Trust (Task 2)<br>Aggression (Task 3)<br>Learning (Task 4)<br>Conscience (Task 5)<br>Separation (Task 6)<br>Identification (Task 7)<br>Child Care (Task 8)<br>Limits (Task 9)<br>Parental Affection (Task 10)<br>Orderliness (Task 11)<br>Self-Concept (Task 12)<br>Heterosexual Socialization (Task 13) |
| Treatmt | 47 | HOPE Treatment by Home Visitation = 1, Control = 2 |
| Urbaniz | 36 | Urbanization of Place of Residence (1 = most rural... 7 = most urban) |

Additional properties and characteristics of major variables will be presented in the next chapter, together with evidence for construct validity.

# IV. RELATIONSHIPS AMONG SELECTED VARIABLES: ESTABLISHING THE CONSTRUCT MEANING OF INDICATOR VARIABLES

## General Issues

The primary purpose of this chapter is to establish a conceptual and empirical context within which the findings reported in later chapters can be understood. In this sense, the present chapter is not designed to and cannot provide a final statement on the validity of any variable. It commences the process of examining construct validity and, thereby, establishes a universe of discourse for considering the HOPE findings. The later chapters carry forward the validation process--indeed, forward a considerable distance for a few selected variables, while uncovering little new information relative to some others. Those variables about which little is learned include, not surprisingly, some about which much is already known (e.g., ability, achievement, and some demographic indicators), as well as newer variables about which more could be learned only from studies specifically designed for that purpose. Patently that is not the HOPE followup study's goal to any significant extent.

It would have been better to rely upon a battery of accepted, authenticated, even acclaimed measures. Toward that end, a staff of a half dozen worked under Charles Bertram's coordination for almost a year reviewing measures and receiving consultation under a planning grant (1977-1978) from the NIE, while the present writer worked principally on the Indirect Parent Interview for the study. However, since measures of what is essential to the study could not be located "on the shelf," those measures have had to be improvised and created. This chapter, thus, is about the kind of research housekeeping that inevitably and unavoidably accompanies improvisation. Moreover, because definitively validating new variables was not a main thrust of this study, the battery does not include the kinds of extra procedures that would have been required solely for that purpose. Instead, the validity analysis that follows uses what is both conveniently and by design at hand in a large scale study of this sort: a convergent and discriminant validity approach that draws on a diversity of constructs and methods of data generation in order to compensate for what had to be omitted due to cost and excessive respondent burden if it were present.

## Sampling and Inferential Approach

In anticipation of later presentation, it is noted here that the experimental families were changed by their participation in HOPE. This is evident not only when group means are compared but also in the magnitude of correlations among many important variables. Compared to the control group, the experimental group data reflect both systematic expansion of some relationships and systematic diminution of others.

For the foregoing reason, foremost attention is given in this chapter to relationships that are found in the control group segment of the sample. If relationships in the pooled sample were examined instead, less clarity would emerge due to both empirical dilution and cancelling and, in a few instances, due to reversals of relationships among variables found when these two groups are compared. This leads to a second strategy of analysis used here: comparison and contrast of relationships found within the two samples.

Both of the foregoing approaches carry with them a disadvantage when compared to a pooled sample approach. The smaller sample sizes which result can lead to the conclusion that some relationships are not significant (due to limited degrees of freedom) when they in fact are reliable events. In order to minimize this source of inferential error, sometimes the experimental and control samples are pooled--i.e., when this will not distort the actual relationships that are verifiably present separately in each. The reader may accordingly anticipate in this chapter a continual shifting that focuses at one moment on one segment of the sample, then contrasts the subsamples, and at another turn looks at the pooled sample. This is not a matter of grubbing for significant relationships but of carrying out legitimate inferential activities that are rendered the more challenging by the circumstances already cited above.

As will be evident, nonsignificant as well as significant relationships are examined. To achieve some consistency, only significant or reliable (i.e., probability equal to or less than .05) findings will be reported as stated findings, while others will simply be noted as nonsignificant, unreliable, or similar descriptors.

## Variables Analyzed

Variables to be analyzed will be considered on an instrument by instrument basis, following the internal outline of Chapters II and III. Use of the same outline here will facilitate cross-reference to the textual material already presented. Second, it keeps together the variables that were assembled by similar methodologies (i.e., self-report, archival record, direct measurement of performance, fact of life circumstance, and random assignment--in the case of treatment). Construct validity needs to be considered in light of the kind of data from which a variable is constructed. Third, considering in promixity the variables obtained by similar methodologies permits an examination of whether the variables are basically just differing ways of looking at the same trait or characteristic or whether they are associated with somewhat more distinct patterns of correlates.

## Direct Parent Interview

Academic orientation. AO is unrelated to whether a child repeated a grade in school, but it relates positively to all of the following school indicators: attendance (.26), achievement (.54), ability (.51), and grades (.61). It also is very positively associated with graduation (.51). It is unrelated to a child's academic-occupational orientation, but in the experimental group this relationship is reliable (-.29). It has a small but reliable positive relationship to parental nurturance (around .28) but is unrelated to dominance. It relates more strongly to parental support of learning (.63) and home environment (HES = .50). It also relates positively to parental generativity (Singfac = -.24). It relates negatively to a parent valuing intellectual dependence (-.32) but is unrelated to the other Kohn measure: values internal orientation. It only minimally relates to the three variables derived from Pumroy, and not in the control group. Coping children come from homes with higher AO (.58), and they are unlikely to have symptoms of depression (-.49), personal disorganization (-.48), active defensiveness (-.33), or restlessness (-.33). They behave in a conventionally adaptive manner (.51) rather than in a shy and serious manner (-.38). They report having more positive self-concept (-.43). CA relates negatively to AO (-.32), suggesting that parents may more strongly emphasize this orientation with younger children. SES is unrelated to AO, nor is AO differentially directed toward boys versus girls. The data suggest that AO was associated with the control children's preschool performance in systematically positive ways, but the sample size is quite small; this inference is supported by the same relationships in the composite sample. This means that AO is more than a retrospective assessment; it is not merely the product of the child's cumulative achievement history working upon a parent's outlook. Finally, as might be expected, high AO parents are rated as having greater interest and involvement with their child's school performance and learning (.49).

AO is judged in light of the foregoing evidence to be appropriately labeled and to be a very promising family indicator that is independent of SES. Data do not permit positioning AO precisely within a causal model or differentiating the percentage of its contribution to school performance from the percentage of its variance attributable to the child's past achievements. This is most likely a circular process of mutual reinforcement; it requires further study.

Parental support of learning is unrelated to child's sex, child's age, and SES. While it is unrelated to attendance and ability, higher Support parents have children with higher grades (.32) and achievement tests (.35). It is unrelated either to grades repeated or graduation and does not predict a child's AcadOcc score. High Support parents are rated as having greater IntInvl in their children's learning (.53), attend more school functions (.47), and contact school personnel more often (.39). No consistent relations are found between Support and preschool data. Rural parents are higher on Support (-.35); Urbaniz was unrelated to AO. The strong relationship between AO and Support (.63) was previously noted.

Despite this, Support more strongly predicts Nurt (.46) and HES (.61) than does AO, while being unrelated to Cont, as was AO. Its relations to IntDep and Internl are nonsignificant. High Support parents are lower on the RejDisc dimension (-.29), but Support does not relate to the other Pumroy variables. Children of higher Support parents are higher in pyschosocial maturity (.29) and report more positive self-concept (around -.26). In child behavior, Support is negatively associated with Depress (-.40), EgoDfns (-.33), Disorg (-.39), and Antisoc (around -.24), while it relates positively to a ConAdpt style (.30).

It is apparent that Support shares considerable variance with AO; at the same time it has correlations with some of the more "affective" parent and child variables that surpass those of AO. Support and AO correlate differently also with the School Behavior Checklist scales. On balance, Support seems to imply a somewhat more supportive stance than AO.

Nurturance is not designed as a school sensitive indicator as are Support and AO. Rather, it relates to a global dimension of the parent-child relationship. It may be susceptible to a significant extent to a self-enhancement reporting bias. It is unrelated to sex of child, CA, or Urbaniz, but does relate negatively to family size (-.24) and SES (-.22)--a small association which may well be accounted for by a common factor. Nurt relates little to school and preschool measures, except for a small relation to grades (.22). Although Nurt does not relate to child's sex as such, it does relate differently to school indicators within sex: Nurt is unrelated to these for girls, but appears to have some importance for boys (Achieve = .23; Ability = .27; GPA = .28; HSGrad = .31). This kind of sex difference will be further examined in later chapters for Nurt and other variables. In the present context it may suggest that, because of their greater vulnerability, boys may require greater nurturance to do well in school. Nurt relates negatively to Depress (-.22), Disorg (around -.24), and positively to ConAdpt (.29). Nurt relates positively to a series of parent variables: AO (.25), Support (.46), HES (.45), and negatively to RejDisc (-.33), and not to the other Pumroy or the Kohn variables. Moreover, it notably does not relate to any of the measures of generativity. High Nurt parents report attending more school functions (around .23), more contacts with personnel (.30), more satisfaction with their child's school performance (.20), and they are rated as having higher IntInvl (.22).

Overall, Nurt is not impressively supported by the data but seems to perform in some ways as might be expected.

Dominance is included as a supposedly orthogonal complement to Nurt, which the data support with a nonsignificant correlation between Nurt and Cont. Cont is unrelated to Sex, but negatively related to social class (.26) and CA (-.28), with the latter finding suggesting less control as children age. Small negative relations to school indicators are found: Achievement = -.29; Ability = -.34; and GPA = around -.25. Cont is unrelated to the School Behavior Checklist series and to SlfConc and AcadOcc. It relates negatively to many preschool measures, but due to small sample size these cannot be confirmed. It is essentially unrelated to any of the other self-report scales from the Direct Parent Interview. High Cont parents, however, attend fewer school functions (-.32), contact personnel less (-.37, with a more negative attitude about contact, -.55, on this minor variable), and are rated lower on IntInvl (-.31). Another interesting series of findings occurs relative to the Eriksonian measures. High Cont parents receive lower Erikson ratings (-.36) and rate lower on the GTrust through GIdent components (.22 to .32), with GTrust being most affected. An apparently related finding is that MatPerc is lower in the children of high Cont parents (around -.26).

The preceding results confirm that dominance/control is basically orthogonal, not only to nurturance but to all other self-report scales from the Direct Parent Interview. On the other hand, it relates to the Eriksonian issues in both the parents and their children in a manner not demonstrated by the previously discussed variables, and it has correlates in school-family relations.

Child health is an exceedingly brief measure--perhaps too brief, one might think, to capture any appreciable amount of variance. Nevertheless, Health does relate to Attend (.36) and GPA (.36) and systematically and positively to preschool indicators. Behavioral correlates are also evident, with children higher on Health being lower on Depress (around -.26), Disorg (around -.25), and also less likely to be of an anxiously dependent style (around -.26). The data also interestingly relate Health to repeating a grade (around -.25) and HSGrad (around .29).

There can be little doubt that a child's general health is important to development and learning. Even though the measure used here is exceedingly brief, a number of meaningful relationships emerged that support the use of Health in the HOPE followup study.

Parent values internal orientation (AKA Self-Directed) has received considerable attention in the sociological literature that suggested it should be included in this study. In the data, Internl does not relate to

Sex, SES, CA, FamComp, FamSize, and BirthOr. It is unrelated to preschool variables and to only one school variable, Achieve, with this being a confusing negative relation (-.30). The high Internl child displays greater Agitate (.29) but lower EgoDfns (around -.26). Parents of high Internl children receive higher scores on the generativity components GTrust through GIdent (-.19 to -.36), with GInit and GIdent being highest, and with the overall index Singfac similarly related (-.30). Internl does not relate to the School-Family part of the data set.

In contrast to Kohn's perspective, it would appear that the low end of the Internl scale is associated with achievement. To understand this, it will be recalled that the low end of the scale represents other-directed or group-oriented--i.e., the parent values having the child get along with others. Now it can be seen how this might relate to the generativity indicators in the way it does. The result would appear to be less agitated, group-oriented behavior in school, accompanied by a small boost to achievement. The relationship to EgoDfns may in this context be understood then in terms of the identified behaviors of responding to flattery/social approval. These kinds of behavior might, in fact, be expected in an other-directed individual for whom the judgment of others is especially salient.

Intellectual dependence has as its polar contrast Autonomous. This variable importantly relates to the school data: Attend (-.35), Achieve (-.51), Ability (-.56), GPA (-.64), and HSGrad (around -.24). It relates further to Depress (.40), AnxDep (.37), Disorg (.38), and negatively to ConAdpt (-.33). Child self-reports did not relate to IntDep. IntDep relates negatively to social class (.36), while being unrelated to Sex, CA, FamComp, FamSize, and BirthOr. Preschool data are largely unrelated. It relates negatively to the self-report parent variables: AO (-.32), HES (-.44), and Support (-.27); and positively to Indulge (.51). Relative to the Indirect Parent Interview, IntDep is associated with low generativity as indicated by each of the components GTrust-GIdent (range .23 to .33) with GIdent being the highest. IntDep relates in the same manner to overall Singfac (.37) and Erikson (-.38). Parents who value IntDep attend fewer school functions (-.33). Other than for this finding, it does not relate to the school-family data.

To state the foregoing findings in another way, the opposite of the foregoing relations is indicated for the value, Autonomy. This scale, composed of only three of Kohn's items, reveals an exceedingly rich network of relationships between a core of parental values and contrasting life outcomes for school performance and patterns of child behavior, and with the Autonomy value being positively linked to generativity. The HOPE treatment did not change the overall level of IntDep-Autonomy, but it did alter its relationships with the other variables within the experimental group, causing nearly all of these relations to shrink to zero order, the single exception being HES (-.30 in the treated group).

Home environment has been reported elsewhere (Gotts, 1987), so is briefly reviewed here. Within the control group, HES relates as follows: repeat grade (-.31), Achieve (.41), Ability (.46), GPA (.57), and HSGrad (.27); ConAdpt (.28) and EgoDfns (-.30); Disorg (-.38), Depress (-.40), ShySrs (-.30), and Antisoc (-.28); AcadOcc (-.36) and SlfConc (-.25); SES (-.53); AO (.50), Nurt (.45), Support (.61), RejDisc (-.34), and IntDep

(-.44); Erikson (.43) and GIdent (-.33); and ParAtnd (.54), Contact (.35), and IntInvl (.58). HES's correlates are in many respects similar to those of Support and generally exceed those of the latter in magnitude. Support relates more strongly to AO, and HES more strongly to SES, with these two differences representing the primary differences between them.

Rejecting-disciplinarian relates negatively to Ability (-.30) but to no other school variable; several negative preschool relations exist but with small sample size. Lower social class is linked to RejDisc (.32); it is unrelated to Sex, CA, or other of the selected demographic variables. Parents high on RejDisc are lower on Nurt (-.33), Support (-.29), HES (-.34), and higher on Reject (.43) and IntDep (.51), while being unrelated to the remaining Direct Interview variables. RejDisc is essentially independent of the generativity and school-family variables.

RejDisc is only modestly related to the other variables of the study. The relationships found are congruent with the variable's label, but it appears that it will add little to the understanding of HOPE's effects.

Indulgent style is another Pumroy derivative. It is basically unrelated to the school or preschool data or to the School-Family Relations Interview. It does not relate either to the parent self-reports or generativity variables. Children of indulgent parents, however, do test as having relatively high psychosocial maturity (.45). This solitary relationship may be understood by considering that parents who describe themselves as indulgent also identify themselves as being least like the disciplinarian style, with the latter seemingly interfering with the development of psychosocial maturity. The usefulness of Indulge is certainly limited by its relatively exclusive relationship to the T.E.D. Test variable MatPerc.

Rejecting and not protective is the final of the three Pumroy-related measures of child-rearing style. Other than for its relationship to the Pumroy variable RejDisc (.43), its only other notable linkage to the remaining data is to Task 13 (.33). This T.E.D. Test finding suggests that experiencing a rejecting parental style may be particularly inhibiting of the development of age-appropriate behavior in the heterosexual relations area. Other than for understanding the T.E.D., this Pumroy measure also is of quite limited value to the HOPE followup study.

Demographic variables are sufficiently straightforward and factual matters not to require further explication here. An exception to this is the new and complex Index of Favorability that is labeled FavIndx. It will be especially instructive to examine its relations to the other environmental indexes of the study: SES and HES. The relative efficacy of these three, however, goes beyond the present focus on the meaning of FavIndx. FavIndx relates to Achieve (.29), Ability (.25), and GPA (.40). It relates more strongly to HES (.47) than to SES (-.38), although neither is a particularly large relationship in view of their competing claims to deal with the same underlying issue. FavIndx relates weakly to AO (.28), Nurt (.27), IntDep (-.40), and Indulgent (-.34), among the parent interview variables. Relationships are also recorded for the generativity measures: Erikson (.32), GTrust-GIdent (range -.13 to -.25; confirmed in composite groups, with GIndust being somewhat lower than the rest), and their sum Singfac (-.29). Preschool data relate positively, but the number of cases is small. High scores on FavIndx are associated with ConAdpt (.31). They predict ChActiv (.37), ParAtnd (.40), and IntInvl (.43).

FavIndx relates modestly to HES and SES and demonstrates relations with a number of the other major variables of the study, although these relations are not especially large ones. That it predicts what it does, however, without having SES or its components included in it, suggests that it might be a useful index to carry into other analyses. From a univariate correlational perspective, FavIndx does not as much mark relations between the environment and other variables as do HES and SES, on the average; from a multivariate perspective it might still be useful for delineating the influences of the family's environment when used in conjunction with both SES and HES.

## Indirect Parent Interview

Erikson ranks predict: Repeat (-.36), Attend (.36), Achieve (.25), Ability (.42), GPA (.44); Task 11, Orderliness (-.42); AO (.26), Cont (-.36) but not Nurt, and IntDep (-.38); positively to preschool data, but sample size is small; SES (-.53), HES (.43), FacIndx (.32) but not to Support; Depress (-.40), ConAdpt (.35), AnxDep (-.36), Antisoc (-.35), Cope (.29); FamSize (-.28) and BirthOr (-.32), but not CA, Urbaniz, or FamComp; and ChActiv (.27), but not clearly to other school-family variables.

In all respects reflected in the data, Erikson ranks relate appropriately to other variables in the sense of being linked to favorable child and family indicators. Erikson is, nevertheless, associated with the favorability of the home environment, showing that generativity is not independent of the underlying forces that shape environment. Moreover, this degree of relationship to environment might detract from the usefulness of Erikson in a multivariate sense, when it is evaluated in the context of equations containing the environmental indicators. Its further value thus awaits empirical testing.

Singfac is a broader index that includes the Erikson information combined with the entire formal category rating system used with the Indirect Parent Interview. The focus on its meaning thus calls for determining how it compares to Erikson as a predictor of other major study variables. Singfac does not as clearly relate to the school data; the T.E.D. Test; the Direct Parent Interview (except for Internl r = -.30); and preschool comparisons are inconclusive. Its relations to the environmental indicators and demographic variables are likewise smaller. In the child behavior patterns, Singfac is a weaker predictor of ConAdpt, Depress, AnxDep, and Cope, but equally predicts Antisoc (.38) and better predicts EgoDfns (.32). On the other hand, it more clearly relates to the school-family data: ChActiv (-.44), ParAtnd (-.49), and Contact (-.36).

Other than for the differences noted above, Singfac and Erikson have the same patterns of relations to the other major variables, and Erikson more clearly reveals these relations. For selected variables cited above, on the other hand, Singfac better reveals the relations.

GTrust through GIdent, the developmental issue components of Singfac, are better understood when simultaneously compared:

| Variable | GTrust | GAuto | GInit | GIndust | GIdent |
|---|---|---|---|---|---|
| Achieve | ns | ns | ns | ns | ns |
| Ability | ns | ns | ns | ns | ns |
| GPA | ns | ns | ns | ns | ns |
| Task 9 | ns | ns | ns | ns | .32 |
| Task 11 | .31 | ns | ns | ns | ns |
| Control | .32 | .29 | .29 | ns | .28 |
| CA | -.29 | -.40 | -.37 | ns | -.33 |

| | | | | | |
|---|---|---|---|---|---|
| ConAdpt | -.31 | ns | ns | ns | -.29 |
| AnxDep | ns | ns | ns | .31 | ns |
| EgoDfns | ns | ns | .36 | .40 | .33 |
| ShySrs | -.28 | -.31 | ns | ns | ns |
| Agitate | ns | ns | ns | -.29 | -.29 |
| Antisoc | .32 | .40 | ns | ns | .47 |
| Internl | ns | ns | -.36 | -.30 | -.35 |
| IntDep | ns | .29 | .29 | ns | .33 |
| ChActiv | -.34 | ns | -.43 | -.48 | -.51 |
| ParAtnd | -.34 | ns | -.45 | -.48 | -.60 |
| Contact | ns | ns | ns | -.48 | -.51 |
| IntInvl | ns | ns | ns | -.30 | -.41 |
| HES | ns | ns | -.26 | ns | -.33 |
| SES | ns | ns | .33 | ns | .28 |

The five stage variables retain the general quality of Singfac in being relatively less sensitive to certain relations than is Erikson. Thus, for those for which Singfac is less efficient than Erikson, all five stage variables often fail to demonstrate a relationship (e.g., Achieve). It is only by summing them into the total, Singfac, that it reveals (albeit less clearly) the same pattern of relations seen for Erikson. In contrast, the significance of Control is fairly uniformly negative across stages (including GIndust which demonstrates the same trend at $r = .22$, so is not discontinuously related), although this fact does not lead to an accumulation or compounding of this negative quality via summation across the five stages into a total. If this were not so, Singfac would relate more strongly (negatively) to Control than does Erikson. Another pertinent observation is that the principal force of Singfac's relation to certain variables seems to be exerted through only some of the stages; for example, its relation to AnxDep is seen to cluster around the industry issue. This kind of demonstrable differential importance among the GTrust through GIdent measures is, in fact, the type of finding needed to support the view that they tap into important developmental stage-related matters that may for this reason be reflected in differing correlational levels for the respective stage indexes. Finally, it can be seen that for some variables for which Singfac better than Erikson reveals empirical relations, the relationships are the greater for the stage variables, and the summing of them into Singfac obscures this fact at times (e.g., see ChActiv, ParAtnd, and Contact).

Relative to the T.E.D. Test, with which it was hoped the Indirect Parent Interview might have many instructive relationships, especially in terms of the GTrust through GIdent measures, the small number of relations actually uncovered was disappointing. A problem with this method of examination is that it is based on small samples and requires the pooling of boys and girls, for whom the implications of the various components of parental generativity may be quite different. In order to overcome these limitations, separate correlational runs were accomplished/completed for boys and girls. There are around 100 cases in each sex subgroup. Second, the total pooled sample of around 200 was examined. With the sexes combined, all meaningful relations disappear, even with the large sample size. With only half this sample size, looking at boys alone, only one reliable relationship appears (Task 2 and GAuto $r = -.24$), which in view of the number of coefficients computed must be considered a chance event. In contrast, the data for girls reveal 14 significant relations (range .20 to .28). Singfac relates negatively to aggression and learning and positively to care for children; GTrust relates negatively to learning and positively to care for children; GAuto is unrelated for girls; GInit relates negatively to aggression and positively to care for children; GIndust relates negatively to aggression and learning and positively to care for children; GIdent relates negatively to learning and positively to peer socialization and care for children; and Erikson relates negatively (positive coefficient) to aggression. These relations are thus confined largely to three tasks: Task 3, Task 4, and Task 8.

Given the foregoing findings, it would appear to be the case that maturity of development in the area of care for children is negatively associated with the mastery of the learning and aggression tasks--all with respect to the influences exerted by generativity. All of the suggestive relations are, nevertheless, quite small. Obviously much more study is needed with these very new indicator variables.

## Direct Child Interview

SlfConc is associated positively with GPA (-.30) and AcadOcc (.31); all other school data are unrelated. From the School Behavior Checklist, only ShySrs is related (.34, which is negative relation). Preschool data do not reliably relate to SlfConc. Of the Direct and Indirect Parent Interview data, only AO (-.43, which is positive) is linked. In the school family data, more positive SlfConc is associated positively with parent comments on child grades (-.42) and parent interest and involvement (-.39). These represent a modest amount of evidence that is congruent with the notion that SlfConc does sample the evaluative component of self-concept. Relations with the T.E.D. Test will be covered later.

*AcadOcc* is higher for children from a more favored home environment (HES r = -.36) and relates positively to self-concept (.31). Other than for these very limited fragments of evidence, AcadOcc yields no evidence of its validity.

## Tasks of Emotional Development Test

Relations between the T.E.D. Test and the Indirect Parent Interview are considered above under the latter instrument. The present section reviews other correlates for each task.

*Task 1*, socialization, goes with less Disorg (.32) and Restles (.29). Children with less controlling parents have more peer skills (.32) and are more other-directed than self-directed (.31). Peer skillful children also engage in a greater number of school activities (-.43). The peer socialization task scores relate very appropriately.

*Task 2*, trust, goes with increased restlessness (.29) and higher preschool ITPA-IQ (-.61). Nuclear families have children with greater trust than do either reconstituted or single-parent families. This is quite limited evidence of validity.

*Task 3*, successful handling of the challenge of aggression, is found at higher levels in boys than girls (-.56). Children who are better able to respond to aggression are slighly higher in Aggress (-.31). They also show greater maturity of heterosexual interest (.35). As preschoolers, they were less advanced on motor skills measured by the Frostig (.58) and on the ITPA-IQ scores (.66). In some respects these findings are reasonable, but the lower preschool scores do not directly follow and are the more puzzling in view of boys being higher on both of these preschool measures and higher on Task 3, both of which should work together to preclude the actual findings between Task 3 and preschool scores.

Task 4, learning, is a task that is successfully perceived by nearly all children, so it provides little variance. It relates to none of the major variables outside the T.E.D. Learning is positively associated with Task 12, self-concept (.37); Task 13, heterosexual socialization (.37); and MatPerc, the sum of Eriksonian ratings of T.E.D. tasks (-.39, a positive relation). This last relation results from linear dependency.

Task 5, conscience, relates positively to parental Nurt (-.40), IPTA-IQ (.59, negative for many of the preschool data), and MatPerc (-.39, positive but overlapping).

Task 6, separation, relates positively to MatPerc (-.31), but negatively to rated IntInvl (.40, negative)--suggesting as parents and children distance themselves from each other (Task 6), parent involvement declines in the child's school activities. Task 6 also relates negatively to a child's ITPA Verbal Expression subtest (.60, negative, small sample), which is difficult to interpret and, in view of sample size, should perhaps be considered as an artifact of sampling error.

Task 7, identification, is unrelated to MatPerc; and relates positively to Task 8, caring for children (.42), suggesting that identification also strengthens maturity in the child's understanding of parenting (Task 8). Urbaniz relates to Task 2 (.33), a finding that supports the interpretation: children from rural backgrounds may more strongly identify with parents in the sense of helping them in their work--fitting the traditional rural notion of "chores."

Task 8, care for children, as already noted, relates to identification (.42); it does not relate to MatPerc. Children with greater Task 8 maturity have more positive SlfConc (.32), manifest more restlessness (-.32), and have parents who provide more Support (-.29, positive).

Task 9, acceptance of limits, does not relate to MatPerc. It relates only to GIdent (-.32). This negative relationship suggests perhaps that parents who promote adolescent identity have children who begin to behave more independently and hence to be less compliant with direct adult enforcement of limits. On the other hand, this single isolated finding may be a statistical artifact.

Task 10, acceptance of parent expression of mutual affection, does not relate to MatPerc. Earlier born children show greater maturity on Task 10 (.29). They also had superior performance on selected preschool measures, but the number of cases is small. It is difficult to detect inherently meaningful principles whereby this small group of relationships "fit."

Task 11, orderliness, unlike most of the preceding variables reveals a considerable network of relationships. Children high on Task 11 have less depression (.47, negative), positive SlfConc (.32), less antisocial hostility (.34), and overall better school functioning (-.29, minor variable). They are less shy and overly serious (.43). More orderly children come from more Nurt homes (-.34) that offer more parental generativity (Erikson = -.42), including greater fostering of trust (.31). They come from somewhat smaller families (.40), are more often earlier born or only children (.47), and have families of higher social class (.35).

Task 12, self-concept (from T.E.D.), relates positively to MatPerc (-.35) and Task 4, learning (.37), but reveals no other reliable linkages, and MatPerc overlaps Task 12.

Task 13, heterosexual socialization, results in higher scores for girls, indicating that they mature psychosocially in this area more rapidly than boys. Heterosexually mature children are also more mature in aggression (.35), which stands in contra-distinction to the preceding relationship: that is, while boys are more mature for aggression and girls for heterosexuality, heterosexuality and aggression maturity are positively related--revealing yet another trend which runs counter to both sex-linked trends. High heterosexuals are also more mature in their attitude toward learning (.37). They score lower in general Ability (.30) and also as preschoolers had less impressive performance scores, with these findings perhaps reflecting a greater commitment on the part of the children to interpersonal avenues of achievement from an early age more than to cognitive achievement. Task 13 relates to the overall score MatPerc (-.29, positive). Their parents are less rejecting (.33) but are lower in generativity (-.35 for a dichotomized variable based on Singfac). Finally, parents of children higher on heterosexuality have fewer contacts with school personnel (.41). MatPerc overlaps Task 13.

The foregoing convergence of findings for Task 13 leads to a picture of a family context in which the acceleration of interpersonal interest may exceed that for intellectual interest. This developmental course results by adolescence in accelerated heterosexual interest.

MatPerc naturally relates to the foregoing task scores in a part-whole sense, although the majority of variance associated in any instance with this linear dependency is not large. The tasks that relate to MatPerc are (where a minus relation is positive): Task 1 (-.39), Task 4 (-.39), Task 5 (-.39), Task 6 (-.31), Task 12 (-.35), and Task 13 (-.29). While MatPerc does not reliably relate to the specific scale scores of the School Behavior Checklist, children high on MatPerc generally present a favorable SBC profile (scales related at probabilities of .06 to .13 due to small sample size). At the present sample size, the following relations are reliable: smaller FamSize (-.31), earlier birth order position (-.30), and having parents who are more indulgent than disciplinarian (.45).

A final T.E.D. scale was constructed to see if the sum of the task scores would be useful. A reliable scale, Tasksum (minor variable), was the result. It is positively correlated with all 13 task scores, with the following being reliably associated: Task 1, Tasks 3 through 8, Task 10, and Task 13 (with 9 of 13 scales being reliably related). Tasksum correlates -.60 with MatPerc, with which it shares a substantial part-whole overlap. Beyond these relations, Tasksum relates to none of the other major variables of the study reliably.

Reviewing the T.E.D. data, it becomes apparent that global indicators of psychosocial maturity like MatPerc and Tasksum reliably summarize some of the T.E.D.'s variance, but it is variance that may be method specific because it relates weakly to external criteria, in the case of MatPerc, and not at all in the case of Tasksum. But the individual task scores did in some instances reveal reliable relations with external criteria (e.g., peer socialization, orderliness, and heterosexual socialization), with other tasks revealing weaker evidence of validity to no supportive evidence. Overall, these kinds of findings hark back to the earlier contention that psychosocial maturity may be less confirmed as a global construct and more congruent with the notion of task specific maturity, as sampled by the T.E.D. for a series of developmentally focused and delineated issues.

School Behavior Checklist

Cope or coping is the most encompassing variable of the many scored from the Checklist. Unlike the others that will be discussed, which are all quantitative indicators, Cope is a classificatory variable assigning values only to those children whose quantitative data for all the interpersonal parts of the Checklist congruently point to the conclusion that they belong either to the coping (2) or noncoping (1) category. All others were assigned a zero as nonclassified and deleted from the following analyses.

Children high on Cope were less likely to Repeat (-.40) and more likely to graduate (.32). They have better Attend (.24) and higher Achieve (.42), Ability (.42), and GPA (.48). Higher SES is associated with higher Cope (-.32), but Cope does not relate to other demographic indicators. Children high on Cope come from more favorable home environments (.29) and have parents with high AO (.58). Their preschool indicators were uniformly positive. Their parents have higher Erikson scores (.29) and on the school-family interview reported higher ChGrade (.60) and AcadSat (.39) while being rated as providing more IntInvl (.33). These validity indicators uniformly support the conclusion that children classified as Cope do cope well and come from backgrounds that support coping.

Relative to the other Checklist variables, Cope relates to all except Aggress, BlntMnp, and Agitate, none of which clearly conveys meaning regarding coping/noncoping. Overlooking linear dependencies, the variables from the Checklist that relate most strongly to Cope are ConAdpt (.68), Disorg (-.65), and Depress (-.60). Since there is essentially no item overlap between Cope and both Depress and Disorg, it can unequivocally be concluded that children high on personal disorganization are likely to be poor copers and to manifest significant symptoms of depression.

Aggress children are more mature in imaginal aggression (Task 3 = -.31). Aggress is not predicted by Sex, SES, CA, BirthOr, FamSize, FamComp, or FavIndx--i.e., it is not demographically determined; HES does not influence it. Aggress children are no more likely to be Antisoc than others, but they may manifest blunt-manipulative behavior (.55), restlessness (.50), and active defensiveness (.39). This passive-aggressive psychological orientation (stubborn, defiant) is accompanied by a physically active disposition (aggressive, restless). It relates little to family characteristics and is not predictive of academic performance. Most reasonably this is viewed as a temperament-linked style that can be channeled in either constructive or deviant directions but, in whatever direction, is likely to be forceful.

ConAdpt is slightly more pronounced in girls (.31) but not predicted by any other demographic variables except FavIndx (.31). These children repeated fewer grades (-.28) and were more likely to graduate (.31). Other school indicators are likewise congruent: Attend (.21), Achieve (.52), Ability (.45), GPA (.59), and preschool variables generally positive. Their parents confirmed this ongoing picture in 1983 (ChGrade = .66; AcadSat = .61). As noted earlier, they are classified as coping (.68; item overlaps constitute linear dependency); they are likely to be low in Disorg (-.63). The family background of these children is instructive: AO (.51), Nurt (.29), Support (.30), HES (.28), ParAtnd (.36), Erikson (.35) with GTrust (-.31) and GIdent (-.29) being most important, and IntDep (-.33; favors autonomy). Finally these are happier children (Depress = -.50).

*AnxDep* children were more apt to fail an early grade (.26), but HSGrad was unaffected. Their academic picture is mildly impaired: Achieve (-.34), Ability (-.37), Grades (-.33), preschool indicators negative (small n's), and accompanied by lower parental expectations (AO = -.38). Their parents seek to foster IntDep (.37) and are lower in generativity (Erikson = -.36), especially as regards encouragement of industry (GIndust = .31). These children seem mildly demoralized (Depress = .37; Disorg = .26). Validity indicators are rated satisfactory for AnxDep. In a related issue, a certain number of AnxDep children will also appear to be shy and overly serious (.48).

*EgoDfns* is seen especially in children who receive low Support (-.33); HES (-.30) is low, parent provides less generativity (Singfac = .32) including especially less GIndust (.40), GInit (.36), and GIdent (.33). Their parents attend fewer school functions (-.33). Their preschool records, interestingly, did not differ from that of the average child. Other Checklist variables that are predictive of EgoDfns are: AnxDep (.38), Depress (.29), and ShySrs (.20), making evident that children of a relatively more passive style are likely to manifest this form of defensiveness.

Depress relates in uniformly negative ways to school indicators: Repeat (.31), HSGrad (-.30), Attend (-.19), Achieve (-.53), Ability (-.48), and GPA (-.57), with mildly congruent preschool indicators. Parents of depressed children are lower on AO (-.50), Support (-.40), HES (-.40), Internl (-.21), Erikson (-.40), and valuing autonomy (IntDep = .40). The picture continued in 1983, with parents reporting ChGrade lower (-.43), and less AcadSat (-.42); parents were rated as lower in IntInvl (-.42). Children who are depressed are slightly less healthy (-.26); they come from larger families (.33) and are later born sibs (.40) but have family compositions that do not differ from the sample's mean. Boys and girls are equally likely to manifest Depress; it does not relate to SES or FavIndx but, as noted above, does to HES. Depress is less common among ConAdpt children (-.50); they are very high in Disorg (.68). Depress is unrelated to two of the active disposition types (Aggress, Antisoc) and to a mild degree found in the third (BlntMnp). Contrastively, it is associated with the more passive types (ConAdpt--above; ShySrs = .42). Depress is the only rationally weighted Checklist score.

Disorg is significantly associated with maleness (-.42) but is unrelated to the other demographic variables of the study. It is unfavorably linked to the school indicators: Repeat (.27), HSGrad (-.25), Achieve (-.45), Ability (-.39), GPA (-.59), ChGrade (-.53), and AcadSat (-.55). AO (-.48), Support (-.39), and HES (-.38) indicate the contribution of family to the Disorg characteristic. These children are less adept at peer socialization (Task 1 = .31) and have high levels of depression (.68). They are noncoping (-.65). Also on the Checklist, Disorg is associated negatively with ConAdpt (-.63) and positively with

Restles (.36), Antisoc (.28), AnxDep (.26), and ActDfns (.26). Overall, it presents a state of disorganized behavior with great consistency and appears to be a suitable candidate for the assigned label.

ShySrs children have mildly disturbed school indicators: Repeat (.29), Achieve (-.22), Ability (-.29), and GPA (-.21). Preschool data indicate the same pattern (small sample size). They present a more negative SlfConc (.34) and have problems in the area of Task 11, orderliness (.43). Their parents relate to them in terms of this characteristic much as other parents would, except that they provide a less stimulating home environment (HES = -.30) and direct toward their children greater GTrust (-.28) and GAuto (-.31)--forms of generativity that would be appropriate if directed toward younger or more vulnerable children. It is as if the parents were responding to the perception that the ShySrs child needs them to continue being supportive in areas of their young child-like vulnerabilities. Demographics do not account for variance seen in ShySrs, nor do other parenting variables relate. As mentioned earlier, this appears to be a temperament-related behavioral component (see Thomas, Chess, & Birch. 1968). It was possible to check this hypothesis against temperament data supplied by parents in the family case studies. ShySrs turns out to relate to a temperament factor labelled: persistent and nondistractible. Moreover, ShySrs children have lower activity level, tend to avoid rather than to approach new situations, have reduced adaptability, and are difficult to distract (i.e., may be associated with obsessional tendencies).

BlntMnp children have limited correlations in the main data set, with the single relation outside the Checklist being to GPA (.24). These children are lower in Depress (-.26) and may assume an aggressive style (.55) and display mild amounts of ActDfns (.24) and Restles (.20). They do not usually act in a ShySrs manner (-.20). Their standing on the other Checklist variables is not predictable from BlntMnp scores, except they may be noncoping (-.43).

Restles has limited correlates within the data set, to include a negative relation to AO (-.33) and a cluster of linkages to the T.E.D.: Task 1, socialization (.29 = low); Task 2, trust (.29, low); and Task 8, care for children (-.32, high). Restles is unrelated to the demographic indicators, to the school data, and to school-family relations. Within the Checklist it relates positively to Aggress (.50), Disorg (.36), Antisoc (.32), ActDfns (.30), BlntMnp (.20), and negatively to ConAdpt (-.33), while being unrelated to Depress. Restles children are lower on coping (-.37). Temperament ratings within the family case studies showed that Restles children have a low threshold to stimulation and are inclined to intense reactions.

ActDfns relates negatively to AO (-.33), ChGrade (-.41), and AcadSat (-.32). It is unrelated to demographic and preschool data. Children higher on ActDfns are lower on Cope (-.34) and ConAdpt (-.23) and higher on AnxDep (.43), Aggress (.39), Agitate (.38), Restles (.30), Disorg (.26), and BlntMnp (.24). It does not relate to EgoDfns (i.e., no general defensiveness factor), Depress, ShySrs, or Antisoc. No pattern of linkages is noted as unique to ActDfns, but it does relate in the ways that might be expected to the variables listed here.

Agitate is found in children whose parents value Internl or self-directed behavior (.29). Parents reported that ChGrade was somewhat low

(-.39) and that they were dissatisfied (AcadSat = -.32). The dichotomized version of Singfac relates positively to Agitate as do the components GIndust (-.29) and GIdent (-.29), with GAuto and GInit both having probabilities of less than .10. Demographic and school variables do not relate to Agitate, nor does it relate to the preschool records. Of the Checklist variables, it is the most independent: only one reliable relation (ActDfns = .38). An attempt was made to see if it relates to temperament components in the family case studies, but unfortunately the variable Agitate was defective in the only file used to examine those relations and is thus shown in a January 1981 printout.

Antisoc is one of the empirically better defined Checklist variables. These hostile children come from families that provide slightly less stimulating home environments (HES = -.28) and less developmental facilitation (Singfac = .38), with GIdent (.47), GAuto (.40), and GTrust (.39) indicating somewhat deficient areas of generativity and with the remaining two also having probabilities less than .10. Antisoc children come from larger families (.31) and appear later in the birth order (.29). Preschool tests showed somewhat lower than average functioning. The school-family interview reflects no reliable relations, however, nor do any of the Direct Parent Interview scales except HES. Antisoc is associated with less orderliness (Task 11 = .34). School indicators are mildly negative (Repeat = .24, Ability = -.25, GPA = -.25), but Attend (-.42) is moderately negative. These children are lower on Cope (-.29), as well as other selected Checklist scales: ConAdpt (-.21), Disorg (.28), and Restles (.32), but with no others reaching a significant level. Family case studies data were consulted; they indicate that Antisoc is associated with both a lower threshold to stimulation and lower levels of rhythmicity (i.e., biologically dysrhythmic).

The Checklist overall is a very satisfactory instrument that generates a number of interesting scales for which the evidence of validity is very promising. Some of the scales appear to focus on matters that relate little to the HOPE followup database. Findings from the family case studies (Gotts & Jones, 1981) allowed for examination of relations between temperament and the Checklist scales. Temperament substrates can be identified for some of the behavioral styles measured by the Checklist. Characteristics derived from underlying temperament are known as relatively stable across time (Thomas et al. 1968); however, small changes occurred in variables as a function of participation in HOPE: ConAdpt increased slightly (-.13), and small declines were noted in Disorg (.12) and Restles (.11); large changes would not be expected in these kinds of indicators.

## School Data from Cumulative Records and Graduation Lists

The prior discussion of these variables will be sufficient, since all of the data for these variables were drawn from official school archival records. As such, they are in their own right definitive indicators of school performance that attest to their own meaning. Combining procedures have been used to correct for missing data points and to determine whether either variability (standard deviations) or temporal trends (slope) information would thereby be lost. However, in no way have the traditionally understood meanings of ability, achievement, grades, promotion (Repeat), attendance, or graduation been altered. The use of GPA and cumulative GPA as indexes of educational outcomes attests that composite variables of this sort are not novel or revolutionary; meaning is preserved.

## School-Family Relations Interview

All of the scores from the school-family relations work are simple variables either coded from a single question or, in one instance, a rating based globally on the entire interview. None of them has a complex meaning, since all are kept close to their operational meaning. This section is accordingly less concerned with construct meaning and more with straight- forward empirical clarification of the correlates of the various items. Only the parental interest-involvement (IntInvl) ratings are strictly in need of some validation.

ChActiv has a broad network of relationships in the entire HOPE data. Children who are reported to engage in more organized activities outside of class have more positive school indicators: Achieve (.38), Ability (.35), and GPA (.31). As might be anticipated, they have greater maturity of peer socialization (Task 1 = -.43). They have supportive, facilitative homes: AO (.41), Support (.38), HES (.31), and Singfac (-.44), with components of generativity revealing even higher relations. These are GIdent (-.51) and GIndust (-.48), with contributions also from GInit (-.43) and GTrust (-.34). It is tempting to view the higher levels of influence for the later-stage generativity components, GIdent and GIndust, as indicating that the parents of these late elementary to early secondary students (i.e., when sampled in 1978 and following) were especially on target with their generativity relative to the ages of the children; this results in a more mature outlook in the children (as shown above for Task 1) that leads to appropriate social channeling of their energies (i.e., as reflected by ChActiv). More socially active children have parents who themselves contact school personnel more often (.53), have higher expectations for their children (.54), and are rated as higher in IntInvl (.58). They come from a more favorable family context (FavIndx = .37). No reliable Checklist correlates are noted nor are demographic factors important.

ParAtnd relates about the same as ChActiv to school indicators: Achieve (.39), Ability (.45), and GPA (.33). Related parent variables obtained five years earlier are AO (.34), Support (.47), HES (.54), and Singfac (-.49)--all also found for ChActiv, but with changed degree of relationship. Parent attendance at school functions relates also to another group of variables that do not affect ChActiv: control (-.32) or dominance is lower, and child autonomy is favored over IntDep (-.33). The stage components of generativity again appear here: GIdent (-.60) being most prominent, GIndust (-.48), GInit (-.45), and with GTrust appearing (-.34). Parents who attend have children who are lower in EgoDfns (-.33), with other Checklist variables being unrelated.

Contact with school personnel relates little to the database: Task 13, heterosexual (.41, inversely related), and Restles (.39).

ChGrade updates to 1983 the child's school grades. GPA is the only core school indicator that is sex-linked, and the same relation appears between ChGrade and Sex (.33), showing that girls receive higher GPA, even though they do not differ from boys in Achieve, Ability, Attend, Repeat, or HSGrad. ChGrade relates positively, as expected, with GPA (.56), with the less than perfect correlation probably reflecting parents' tendency to cite the GPA over the recent past and present, which may differ from the prior GPA that was heavily weighted with elementary school performance. The present report is the only estimate we have of GPA during the secondary school years for a substantial segment of the original sample. ChGrade relates to HSGrad (.68), a level of relationship that exceeds that for GPA's relation to HSGrad (.44), providing further support to the notion that ChGrade better reflects secondary school performance and GPA elementary school functioning. Another datum that fits into this picture is that GPA relates to Repeat (-.65), whereas the later ChGrade relates to the remote variable Repeat to a smaller degree (-.30, and nonsignificant). AcadSat, also from 1983, relates more strongly to ChGrade (.79) than it does to GPA (.59). These lines of evidence suggest that ChGrade may be used as a surrogate for secondary level grade point, which is not directly available in our data.

ChGrade's relation to AO (.68) raises another interesting point: AO relates to GPA at an only slightly lower level (.61) in the control group. Moreover, in the experimental group, the magnitude of these is even reversed: GPA with AO (.70) versus ChGrade with AO (.59). It would be difficult in the face of these findings to maintain that AO is nothing more than a reflection of what parents know about their children's grades. The finding in the experimental group, in fact, shows that AO as likely influences grades as it is influenced by them. Still, as previously discussed in the Direct Parent Interview section of this chapter, it is not possible within the present study design to partition the variance of AO into (a) its contribution to school performance, and (b) the influence of school performance on it.

Returning to consideration of ChGrade, it relates as could be expected positively to SlfConc (-.42, positive) and Achieve (.40), as well as to the other school indicators already noted. Ability is missing from this lineup because it does not reliably relate to ChGrade, whereas Ability strongly related to GPA (.77). Now, if it is correct to identify GPA with elementary performance and ChGrade with secondary attainment, the foregoing finding would suggest that Ability is a larger factor in elementary school achievement and a lesser factor at the secondary level. These expanded perspectives on school grades will be further considered in the course of discussions in later chapters.

The remaining principal correlates of ChGrade are found in the child behaviors of the Checklist: Depress (-.42), ConAdpt (.66, comparable to GPA with ConAdpt at .59), Disorg (-.53 versus -.59 between GPA and Disorg), Restles (-.45), ActDfns (-.41), and Agitate (-.39).

AcadSat is higher for girls (.38) just as grades are (.33; see earlier discussion). It relates more strongly to the contemporary (secondary) indicator, ChGrade (.79), and to a lesser extent to GPA (.59), which is being viewed as more of an elementary indicator. AO relates to AcadSat (.55), an exceedingly interesting fact, because one of the four Fels components found in AO was satisfaction/dissatisfaction, which also correlated at the identical level with AO (.55). This finding suggests that the single question may be used in some interview contexts in place of the much more extended protocol for assessing satisfaction in Fels.

AcadSat also relates positively to Achieve (.34), Repeat (-.38), and HSGrad (.68). It relates in favorable ways to a number of other indicators: Health (.36), Depress (-.42), ConAdpt (.61), Disorg (-.55), ActDfns (-.32), and Agitate (-.32).

Expects has a limited number of relations, which may be due to its being based on incidental remarks rather than drawn out by a specific question. Since academic expectation was a highly prominent part of AO, and Expects and AO show no reliable relationship, it is concluded that Expects is not equivalent to the Fels construct academic expectancy.

Expects relates as follows: HSGrad (.50), ChActiv (.54), ConAdpt (.34), ParAtnd (.44), ChGrade (.57), and IntInvl (.41).

IntInvl is associated with higher AO (.49), lower Cont (-.31), greater Support (.53), more favorable HES (.58) and FavIndx (.43), and positively with the GIdent generativity component (-.41). This is a fairly impressive series of relations to have demonstrated with data obtained five years earlier from the same group of parents using quite divergent methods on the two occasions. IntInvl relates in meaningful ways to the child data as well: Depress (-.42), Achieve (.36), Ability (.35), GPA (.43), and SlfConc (-.39), all favorable. IntInvl further relates to somewhat lower psychosocial maturity on the separation task (Task 6 = .40), suggesting continued satellization to parents in 1978 (on Task 6) is linked to greater continuing parental IntInvl in 1983. These children were also more coping (.33).

Within the school-family data, IntInvl was highly to moderately related to several variables, Contact (.44) and ParAtnd (.76), which suggests some of the sources of impression from which the overall rating was made. It also relates to two variables that did not likely influence the rating: ChActiv (.58) and Expects (.41).

## Preschool Data

Any preschool data that will be cited are based on widely used standardized measures. No effort is made here further to establish their meaning.

## Treatment

This is an experimental or independent variable created by random assignment. The control group is understood to be a community control condition that, within the study's longitudinal design, assures that the ongoing experiences of school from grades 1-12 were on the average the same for the experimental and control groups.

## Conclusions

The construct meaning of a number of variables was clarified satisfactorily; others appeared promising and should be further studied; and a few variables appear of very limited value to the HOPE followup. The overall battery is judged to be sufficiently replete with meaning to serve the study's purposes.

Properties of Variables

| Name | I<br>M | II<br>S | III<br>Min | IV<br>Max | V<br>I-Rr | VI<br>Alpha |
|---|---|---|---|---|---|---|
| Ability | .047 | .864 | -2.57 | 2.16 | -- (++) | -- (++) |
| AcadOcc | -9.97 | 3.49 | -18.12 | -4.06 | -- (+) | -- (+) |
| AcadSat | 2.224 | .954 | 1.00 | 3.00 | N/A | N/A |
| Achieve | -.039 | .964 | -2.41 | 2.02 | -- (++) | -- (++) |
| ActDfns | 9.672 | 23.980 | 0.00 | 171.00 | -- (++) | .69 |
| Aggress | 29.209 | 96.133 | 0.00 | 780.00 | -- (++) | .92 |
| Agitate | 2.703 | 14.534 | 0.00 | 189.00 | -- (++) | .75 |
| Antisoc | 4.303 | 16.741 | 0.00 | 133.00 | -- (++) | .69 |

| | | | | | | |
|---|---|---|---|---|---|---|
| AnxDep | 26.822 | 51.735 | 0.00 | 368.00 | -- (++) | .82 |
| AO | 69.926 | 13.109 | 37.34 | 105.35 | .69 | .79 |
| Attend | 94.937 | 4.351 | 63.62 | 99.90 | -- (++) | -- (++) |
| BirthOr | 2.639 | 1.697 | 1.00 | 9.00 | N/A | N/A |
| BlntMnp | 21.547 | 39.763 | 0.00 | 274.00 | -- (++) | .77 |
| CA | 154.170 | 14.151 | 127.00 | 185.00 | N/A | N/A |
| ChActiv | 1.386 | 1.413 | 0.00 | 4.00 | N/A | N/A |
| ChGrade | 5.442 | 1.743 | 1.00 | 8.00 | N/A | N/A |
| ConAdpt | 158.297 | 137.244 | 0.00 | 458.00 | -- (++) | .86 |
| Cont | 14.455 | 7.536 | -7.86 | 36.04 | .58 | .73 |
| Contact | 2.467 | 1.001 | 1.00 | 4.00 | N/A | N/A |
| Cope | 1.635 | 0.482 | 1.00 | 2.00 | .57 | -- (++) |
| Depress | .528 | 3.011 | -4.00 | 15.00 | -- (++) | .63 (Complex) |
| Disorg | 57.925 | 84.925 | 0.00 | 364.00 | -- (++) | .84 |
| EgoDfns | 2.350 | 10.448 | 0.00 | 142.00 | -- (++) | .53 |
| Erikson | 349.186 | 34.551 | 227.00 | 435.00 | .79 | .86 |
| Expects | 5.849 | 1.722 | 1.00 | 8.00 | N/A | N/A |
| FamComp | 1.395 | .782 | 1.00 | 3.00 | N/A | N/A |
| FamSize | 3.380 | 1.697 | 1.00 | 9.00 | N/A | N/A |
| FavIndx | 2.374 | .286 | 1.50 | 3.20 | -- (++) | .44 (Complex) |
| FrostPQ | 10.017 | 1.709 | 6.00 | 14.00 | Std | Std |
| GAuto | 6.005 | 1.776 | -1.00 | 10.00 | .52 | .88 |
| GIdent | 4.577 | 1.476 | 1.00 | 9.00 | .41 | .86 |
| GIndust | 3.409 | 1.212 | 1.00 | 7.00 | .57 | .83 |
| GInit | 4.519 | 1.293 | 2.00 | 8.00 | .75 | .86 |
| GPA | 3.843 | .766 | 1.87 | 5.00 | -- (++) | -- (++) |
| GTrust | 4.510 | 1.563 | 1.00 | 9.00 | .49 | .87 |
| Health | 23.380 | 457.928 | -2500.00 | 500.00 | .51 | -- (++) |
| HES | 4.358 | .721 | 2.25 | 5.88 | .90 | .74 |
| HSGrad | 1.837 | .371 | 1.00 | 2.00 | N/A | N/A |
| Indulge | 197.432 | 166.488 | -22.00 | 1134.00 | .86 | -- (++) |
| ITPA-IQ | 110.888 | 18.685 | 56.00 | 195.00 | Std | Std |
| IntDep | -187.864 | 114.332 | -582.00 | 596.00 | .89 | -- (++) |
| Internl | -6.291 | 98.140 | -400.00 | 400.00 | 1.00 | -- (++) |

| | | | | | | |
|---|---|---|---|---|---|---|
| IntInvl | 2.016 | .750 | 1.00 | 3.00 | -- (+) | N/A |
| MatPerc | 49.716 | 4.344 | 39.00 | 59.00 | -- (+) | -- (++) |
| Nurt | 36.613 | 5.411 | 21.97 | 49.88 | .51 | .67 |
| ParAtnd | 2.522 | 1.752 | 0.00 | 5.00 | N/A | N/A |
| PPVT-IQ | 110.056 | 21.551 | 62.00 | 151.00 | Std | Std |
| RejDisc | 488.493 | 169.587 | 0.00 | 729.00 | .77 | -- (++) |
| Reject | -26.648 | 118.879 | -169.00 | 317.00 | .86 | -- (++) |
| Repeat | .137 | .344 | 0.00 | 1.00 | N/A | N/A |
| Restles | 6.509 | 16.488 | 0.00 | 104.00 | -- (++) | .65 |
| SES | 48.845 | 13.355 | 11.00 | 77.00 | -- (++) | -- (++) |
| Sex | 1.482 | .500 | 1.00 | 2.00 | N/A | N/A |
| ShySrs | 12.753 | 24.393 | 0.00 | 125.00 | -- (++) | .65 |
| Singfac | .005 | 9562.195 | -20413.00 | 26915.00 | -- (+) | .88 |
| SlfConc | -29.275 | 40.971 | -130.00 | 140.00 | .64 | .71 |
| Support | 7.612 | 1.892 | 2.24 | 12.66 | .49 | -- (++) |
| Task 1 | 5.393 | 6.188 | -16.20 | 14.07 | .78 | .87/.89[a] |
| Task 2 | 1.457 | 3.129 | -5.76 | 13.11 | .32 | .61/.64 |
| Task 3 | 9.638 | 6.224 | 1.60 | 20.54 | .57 | .84/.83 |
| Task 4 | 2.765 | 2.902 | -6.32 | 13.15 | .84 | .71/.58 |
| Task 5 | 5.466 | 5.689 | -13.26 | 13.23 | .93 | .87/.83 |
| Task 6 | 2.080 | 3.358 | -8.40 | 10.43 | .71 | .64/.54 |
| Task 7 | 2.421 | 5.257 | -11.20 | 12.34 | .78 | .88/.77 |
| Task 8 | .858 | 4.479 | -10.68 | 9.42 | .73 | .85/.68 |
| Task 9 | 3.192 | 3.094 | -9.28 | 11.30 | .36 | .52/.68 |
| Task 10 | 1.915 | 3.649 | -10.95 | 8.23 | .85 | .72/.65 |
| Task 11 | 2.121 | 1.534 | .05 | 8.22 | .73 | .74/.57 |
| Task 12 | 7.041 | 6.836 | -6.45 | 46.50 | .96 | .90/.85 |
| Task 13 | 2.686 | 3.155 | -6.56 | 14.86 | .76 | .73/.63 |
| Treatmt | 1.304 | .461 | 1.00 | 2.00 | N/A | N/A |
| Urbaniz | 2.967 | 1.462 | 1.00 | 7.00 | N/A | N/A |

Notes: I = Mean of sample (n's vary 178 to 342).

II = Standard deviation of sample.

III = Minimum score assigned in sample.

IV = Maximum score assigned in sample.

V = Interrater reliability coefficient, if available; unavailable indicated by dash (--); Std used for standardized instrument; N/A means not applicable.

VI = Internal consistency coefficient, if available; unavailable noted by dash (--); Std used for standardized instrument; N/A means not applicable.

[a]elementary coefficient/secondary coefficient (Column VI)

### Commentary on Procedures for Tabled Reliabilities

Interrater reliability coefficients are considered only minimally satisfactory. They were obtained under minimally acceptable conditions and reflect the lower limits that might be expected using lower level professionals who receive brief training in the scoring methods. The internal consistency coefficients, instead, better estimate the reliability of the various measures, while the interrater coefficients are provided to suggest what may be expected under some conditions of operation. In contrast, the basic scoring/rating was performed by high level professionals who received extensive training and practice. Because some coefficients are not available, estimates have been made of the probable reliabilities of either or both types, as follows: (++) predicts moderately high to high reliability; (+) predicts moderate reliability. Estimates are based on the data types involved for interrater and empirical factors for alphas. N/A is used for factual items or simple answers.

### Discussion

The overall status of the reliability evaluation can be summarized as generally acceptable to good. The somewhat lower than desired coefficient for Depress and the quite low estimate for FavIndx appear realistically to reflect the complexity of these two variables in the sense of low internal consistency. Other variables with low coefficients are, on the other hand, judged simply to be unreliable (e.g., EgoDfns, Task 4, Task 6, and so on). The data do not permit conclusions about whether greater reliability would be obtained in samples having different characteristics that provide greater relevant variance but do, within the present study context, represent less than desirable reliabilities in these instances.

Special caution is required in evaluating the elementary child alpha coefficients for Tasks 1-13, due to their being based on a very small sample; this is conducive to instability of coefficient alpha. The so-called "elementary" coefficients are one of the isolated pieces of information remaining from the "younger siblings study" that was mentioned earlier. The "secondary" coefficients are based on the HOPE sample which at the time of the T.E.D. administration was weighted toward that direction by a group composition averaging almost 13 years of age. Comparable coefficients have been computed on the original normative Boston data (Cohen & Weil, 1975) for Tasks 1-6 after first applying a modified scoring system to those data, with the following respective coefficients: .87, .61, .79, .54, .73, and .74 for elementary.

A final comment is in order here on the Task 1-13 internal consistency coefficients. In general, the task scores were found to be more internally consistent when their respective Eriksonian ratings were not included in the various task computing formulas. The total HOPE data set includes task scores sets computed with the Eriksonian ratings included and excluded. The coefficients reported in the table above (but not for the Boston sample in text) are all based on task scores that include the corresponding Eriksonian task ratings. The series of findings about task score internal consistency established that the Eriksonian ratings of T.E.D. stories draw upon a slightly different source of variance than do the remaining combined rating components. They are not, however, unrelated to their respective task scores; rather, they relate strongly to them but do not as intrinsically belong in them as do ratings for the other formal categories. It follows from this that relations found between MatPerc and task scores may be the result of part-whole overlaps in score computation, as was noted earlier when discussing the validated meaning of these variables. But it is germane in closing this chapter to note that the task-specific Eriksonian ratings (i.e., for individual stories) relate to the scores for Tasks 1-13 in ways that further point to their validity, especially as regards the linkages between the tasks depicted and the Eriksonian stages at which these were hypothetically "placed" by judges who rated them for stage salience or relevance. These additional comments on the validity of the task scores were positioned here so that they could be considered in the full context of the validity issue.

One implication of the foregoing is that the task scores actually used in this report are slightly less reliable than the alternate scores that exclude Eriksonian ratings. This is important to remember before using the reliability coefficients cited in tabular form above. The use of these less reliable scores calls for some explanation. This form of the task scores was used in the hope of maximizing the capacity to detect possible relations between the Eriksonian-loaded parent scores such as Singfac and the child data. Of course, all possible combinations of these could have been examined, but to do so would have further expanded the text unnecessarily.

This chapter has delineated some of the construct meaning of variables that will be further considered hereafter in the succeeding chapters. This chapter, together with Chapter III, should be consulted as needed throughout the later presentations. The construct meanings unfolded here will prove more accurate than will other intuitive associations that one might have to the variable names selected for labels in the HOPE followup study. With this caution in mind, Chapter V deals with inferential studies that will refer repeatedly to the variables already considered.

# V. INFERENTIAL STUDIES WITH SES CONTROLLED

## Inferential Design

The basic design used throughout this chapter compares groups that differ on one of the major parent variables, such as Academic Orientation. In order to accomplish this, boys' and girls' records are separated and the median of each sex's distribution on the parent variable is identified. Children falling above the median and below the median for their sex are assigned to Hi and Lo groups on that variable. The result is Hi and Lo groups used in a boys' analysis, and the same is true for girls' groups. The groups are compared then by one-way or single factor analysis of variance with covariance. The covariate used each time is SES. The covariate is included in the analysis in recognition of its correlation at significant levels with most of the dependent variables to be analyzed.

The use of the covariate causes the variance of the dependent variable that is associated with SES to be separated into an "SES effect." This portion of the variance is thus removed from the total variance such that when the effect of the independent variable is tested, the variance removed is no longer available for consideration; the effect of the independent variable is, thus, limited to the remaining variance less the variance for the error term. The inferential question posed has been stated as follows: "Does knowledge about treatment add significantly to the proportion of variance accounted for by the covariate?" (Kerlinger & Pedhazur, 1973, p. 268) The question tested is in effect, "...what would the result be if the groups were made comparable with respect to the uncontrolled variable?" (McNemar, 1962, p. 366) The uncontrolled variable in this instance is SES, which has not been experimentally controlled and which likely acts as an independent variable along with the parent or family variable and is partially responsible for variation in the dependent variable.

The foregoing approach provides a reasonably sound statistical adjustment for most analyses. An exception to this is the HES, which is a competitor variable to SES. The problem here with the covariance adjustment arises from a fact that was alluded to earlier: the variance is no longer available for consideration. The covariance method thus unfairly predetermines that the full effect of SES will be removed from the dependent variable prior to considering the contribution of HES to the dependent variable. This unfortunately is an unavoidable consequence of using the covariance method. It is, nonetheless, possible to estimate the extent of overlap and to attempt to unconfound this in the discussion; this approach is followed in reporting. The same problem comes up also whenever HES is treated as a dependent variable, with the result that its relation to some other independent variable is reduced by the HES-SES relationship. Analogously, when FavIndx is analyzed in any manner, its strong linkage to SES may prevent detection of the true extent of its relation to other parent/family indicators. Again, some perspective will be introduced via the discussion.

At the time that these analyses of variance with covariance runs were completed, not all of the major variables discussed in Chapters III and IV were available. The present chapter uses some provisional variables, as well as omitting others that later were perfected. Some of the School Behavior Checklist variables were among those that were still preliminary. Specifically, Personal Disorganization (PDisorg) was used rather than the factor for Disorg. PDisorg and Disorg are correlated .85; thus, a fairly clear sense of the effects of independent variables on disorganization can be inferred. Self-effacing Dependent (Dependt) is used in place of AnxDep, the more refined factor form. These variables are correlated .76. Dependt also overlaps with ShySrs (.58). Accordingly, Dependt must be viewed as a more complex variable that subsumes primarily AnxDep and secondarily ShySrs. Conventional Conforming (Conform) appears in the place of ConAdpt, with which it correlates .88. PDisorg, Dependt, and Conform are the rational scale versions of their respective factor counterparts.

In order to avoid the unnecessary presentation of the mechanics of the analyses, only the essential elements of each statistical test are presented, and always in this order:

Independent Variable

| Dependent Variable | | | | |
|---|---|---|---|---|
| Boys | df | F ratio | probability | Means |
| SES | df | F ratio | probability | ----- |
| Girls | df | F ratio | probability | Means |
| SES | df | F ratio | probability | ----- |

No sharp delineation is maintained between tabular and textual material in this section. Thus, findings will appear in modified tabular form, as above, accompanied by interspersed text. This approach lends great flexibility to the examination of data. It results in less dissociation of pertinent textual commentary from the associated presentation of findings than is customary, for example, in the style followed by the American

Psychological Association (APA style). Tables remain unnumbered and are straightforwardly titled.

The probability set for presenting tabled results is .05 or less. If a finding does not reach this probability level, it is simply noted as ns for nonsignificant. Changes of F ratios and probabilities that result from the entry of SES as covariate will often be cited in the chapter. These indicate what would be the magnitude of a particular finding if SES were withheld from the analysis. Another datum of interest is the variance accounted for in the dependent variable by the combination of the independent variable and SES. This is actually computed as an R-square within a model that uses the combination of SES and the independent variable to predict the dependent variable. This variance figure will at times be cited. Only reliably different means are cited; these are least square derived means that have been adjusted for the covariate, SES. Means are only shown if they are different for the independent parent/family variable. That is, irrespective of SES effect on the dependent variable, mean differences relative to SES are not of interest; the objective is to use SES to make the groups fully comparable and not to examine SES as such. With these preliminary remarks in view, the effects of parent/family variables now will be considered.

## Academic Orientation

AO and SES are significantly related in both the sample of boys and of girls. Its relation to HES is, moreover, affected by the SES-HES linkage:

AO

| | | | | |
|---|---|---|---|---|
| HES | | | | |
| Boys | 1,95 | 7.23 | .0085 | Hi 4.63/Lo 4.27 |
| SES | 1,95 | 17.11 | .0001 | |
| Girls | | | ns | |
| SES | 1,91 | 5.75 | .0186 | |

If the effect of SES were removed, boys' results become 13.83/.0003 and girls' 5.10/.0263. The dramatic and undoubtedly distorting drop in the tabled results above due to the entry of SES is, thus, worth noting. This can be further inspected by examining its converse:

HES

| | | | | |
|---|---|---|---|---|
| AO | | | | |
| Boys | 1,95 | 6.53 | .0122 | Hi 73.45/Lo 67.13 |
| SES | | | ns | |
| Girls | 1,91 | 9.41 | .0028 | Hi 74.72/Lo 66.68 |
| SES | | | ns | |

With SES removed, these results become for boys 11.18/.0010 and for girls 13.65/.0004. This illustrates that, although HES and SES are linked, HES has additional meaning relative to such variables as AO that SES cannot predict.

When AO acts as independent variable, the $R^2$ for boys is .246 and for girls .107. With HES as independent variable, these respective figures are .139 and .155. This shows that more variance is accounted for when AO is predictor for boys due to the concurrent substantial contributions of AO and HES. That is, considerably more of the variance of boys' HES scores is accounted for by AO and SES than is the percentage of AO accounted for by HES and SES. For girls, on the other hand, the converse is slightly more the case.

The efficacy of AO as a predictor of other parent/family variables is observed in the following:

AO

| | | | | |
|---|---|---|---|---|
| Support | | | | |
| Boys | | | ns | |
| SES | | | ns | |
| Girls | 1,91 | 21.00 | .0001 | Hi 8.14/Lo 6.44 |
| SES | | | ns | |

Independently of SES, boys' ANOVA results are 5.39/.0224.

AO

| | | | | |
|---|---|---|---|---|
| Singfac | | | | |
| Boys | | | ns | |
| SES | 1,95 | 17.99 | .0001 | |
| Girls | 1,91 | 13.62 | .0004 | Hi -3486.74/Lo 3073.89 |
| SES | | | ns | |
| Nurt | | | | |
| Boys | 1,95 | 7.48 | .0074 | Hi 39.37/Lo 36.41 |
| SES | | | ns | |
| Girls | | | ns | |
| SES | | | ns | |

| | | | |
|---|---|---|---|
| Cont | | | |
| Boys | | | ns |
| SES | 1,95 | 6.48 | .0019 |
| Girls | | | ns |
| SES | | | ns |
| FavIndx | | | |
| Boys | | | ns |
| SES | 1,95 | 11.83 | .0009 |
| Girls | | | ns |
| SES | 1,91 | 6.61 | .0118 |

Among the foregoing dependent variables, when SES is removed the ANOVA results become: for girls on Singfac 18.20/.0001 and for boys on Nurt 9.68/.0025; no others in this tabled group change in any notable manner.

The total group just presented of AO, HES, Support, Singfac, Nurt, Cont, and FavIndx are viewed as the primary independent variables of the study, along with SES. The inferential objective is to determine how much they complement and how much they overlap one another, with SES being held comparable. This is best accomplished by examining the sexes separately due to their quite different results. For boys, AO shares variance especially with HES and Nurt, i.e., they overlap as predictors of AO when SES is comparable. It may thus be the case that Support, Singfac, Cont, and FavIndx could conjointly with AO account for variance on the other variables (i.e., dependent and intermediate--yet to be explained). This, of, course does not conclusively rule out the potential value of HES and Nurt for this purpose. For girls, quite a different pattern is observed, with AO overlapping most with Support and Singfac, suggesting thereby the possible value mainly of HES, Nurt, Cont, and FavIndx as co-predictors.

The pattern of sex differences is illustrated by the SES adjustments needed to achieve comparability of groups when the sample is partitioned by AO. One might ask, "Is adjustment needed?" The answers for boys are: Support (no), HES (yes), Singfac (yes), Nurt (no), Cont (yes), and FavIndx (yes). For girls the answers are: Support (no), HES (yes), Singfac (no), Nurt (no), Cont (no), and FavIndx (yes). The between-sex patterns differ almost as often as they match!

## Intermediate Variables

Between the foregoing independent variables and the dependent variables lies a group of indicators that may be thought of as intermediate. That is, they are dependent variables relative to the independent variables and simultaneously are independent variables relative to the child and school indicators, which are dependent variables relative to the intermediate indicators. The intermediate variables all come from the School-Family Relations Interviews completed five years following the main followup study. These are ParAtnd, Contact, IntInvl, AcadSat, and Expects. One additional school-family variable, ChGrade, has been assigned to the dependent variable group, as earlier discussed in Chapter IV. Their relation to AO will be considered next, with ChGrade being included in a later section with the other school and child variables.

AO

| | | | | |
|---|---|---|---|---|
| ParAtnd | | | | |
| Boys | 1,81 | 5.29 | .0240 | Hi 3.08/Lo 2.27 |
| SES | 1,81 | 15.58 | .0002 | |
| Girls | 1,80 | 9.22 | .0032 | Hi 2.96/Lo 1.92 |
| SES | 1,80 | 11.21 | .0012 | |

| | | | | |
|---|---|---|---|---|
| Contact | | | | |
| Boys | 1,81 | 6.38 | .0136 | Hi 2.91/Lo 2.20 |
| SES | | | ns | |
| Girls | | | ns | |
| SES | | | ns | |
| IntInvl | | | | |
| Boys | | | ns | |
| SES | 1,81 | 12.37 | .0007 | |
| Girls | 1,80 | 6.98 | .0099 | Hi 2.18/Lo 1.77 |
| SES | 1,80 | 9.62 | .0027 | |
| AcadSat | | | | |
| Boys | | | ns | |
| SES | | | ns | |
| Girls | 1,80 | 8.65 | .0043 | Hi 2.71/Lo 2.15 |
| SES | | | ns | |
| Expects | | | | |
| Boys | | | ns | |
| SES | 1,81 | 12.86 | .0006 | |
| Girls | 1,80 | 7.23 | .0087 | Hi 5.82/Lo 4.30 |
| SES | | | ns | |

Among the intermediate variables, AO's influence pattern is quite different for boys and girls. For boys, ParAtnd and Contact are influenced by AO; for girls, the influence extends to ParAtnd, IntInvl, AcadSat, and Expects. Thus, the data for girls show a fairly pervasive pattern of AO influence upon the later involvements that parents had with schools and a more limited pattern for boys. The pattern of SES relations with these intermediate variables is more similar for the two sexes: both data sets reveal the influence of SES on ParAtnd and IntInvl and no influence on either Contact or AcadSat. Expects, however, is sex-linked for

SES just as for AO, with boys' parents being influenced by SES and not by AO and girls' parents influenced by AO and not by SES. For Expects, the patterns of the two sexes are, thus, mirror images of one another. Another interesting finding is that every one of the significant relations tabled above between AO and the school-family interview variables increases in significance--most increasing substantially, while none of the nonsignificant relations rises markedly in importance--when SES is removed as a covariate.

The higher variance linkages between the school-family variables and the combination of AO and SES as predictors appear for ParAtnd (boys 23.1%; girls 25.4%) and IntInvl (boys 17.1%; girls 21.6%). In only two other equations did the $R^2$ exceed 10% of the variance: Expects (boys 14.7%) and AcadSat (girls 10.4%). Contact is less accounted for by AO plus SES than are the other variables of this group, indicating that the influences on parent contact with school personnel remain to be identified.

The analysis turns now to AO and the dependent variables:

AO

---

**Attend**

No significant variance in Attend is accounted for by AO and SES for either sex.

**Achieve**

| | | | | |
|---|---|---|---|---|
| **Boys** | 1,93 | 29.26 | .0001 | Hi .442/Lo -.445 |
| SES | 1,93 | 8.45 | .0046 | |
| **Girls** | 1,91 | 41.69 | .0001 | Hi .628/Lo -.318 |
| SES | 1,91 | 9.26 | .0031 | |

| | | | | |
|---|---|---|---|---|
| Ability | | | | |
| Boys | 1,94 | 20.83 | .0001 | Hi .513/Lo -.114 |
| SES | 1,94 | 8.97 | .0035 | |
| Girls | 1,91 | 24.44 | .0001 | Hi .543/Lo -.219 |
| SES | 1,91 | 11.69 | .0009 | |
| GPA | | | | |
| Boys | 1,92 | 29.35 | .0001 | Hi 4.20/Lo 3.51 |
| SES | 1,92 | 8.69 | .0041 | |
| Girls | 1,89 | 41.64 | .0001 | Hi 4.44/Lo 3.72 |
| SES | 1,89 | 4.58 | .0350 | |
| ChGrade | | | | |
| Boys | 1,81 | 8.21 | .0053 | Hi 5.62/Lo 4.57 |
| SES | 1,81 | 4.74 | .0324 | |
| Girls | 1,80 | 22.72 | .0001 | Hi 6.53/Lo 4.82 |
| SES | | | ns | |

For all of the foregoing school indicators, data for both boys and girls agree that AO strongly predicts favorable functioning even after SES has been fully taken into account. Further, even after SES's effect has been removed from AO, AO still accounts for more variance than SES for all dependent variables. It is also noted that the solutions for girls are associated with larger $R^2$ than for boys: Achieve (boys .331; girls .416); Ability (boys .286; girls .343); GPA (boys .334; girls .387); and ChGrade (boys .159; girls .273). The tabled means clearly delineate AO's effects, and nowhere more clearly than for Achieve and Ability. For all four means computed, the Hi AO group's means are about one-half a standard deviation above the national norms and all of the Lo AO group's means are below national norms (i.e., minus score means are characteristic).

Other dependent variables reflect more AO effects:

AO

| | | | | |
|---|---|---|---|---|
| **AcadOcc** | | | | |
| **Boys** | | | ns | |
| SES | 1,89 | 7.14 | .0090 | |
| **Girls** | 1,86 | 4.31 | .0409 | Hi -10.87/Lo -9.33 |
| SES | | | ns | |

Deleting SES in the AcadOcc analysis raises the significance level for girls only (6.17/.0149). It is most interesting to observe that the pattern of sex differences for AcadOcc matches that for Expects in the school-family parent measure.

AO

| | | | | |
|---|---|---|---|---|
| **SlfConc** | | | | |
| **Boys** | 1,85 | 9.35 | .0030 | Hi -53.67/Lo -30.65 |
| SES | | | ns | |
| **Girls** | 1,82 | 4.60 | .0340 | Hi -29.21/Lo -10.16 |
| SES | | | ns | |

Only the girls' result changes when SES is omitted from the analysis (6.33/.0138).

AO

| | | | | |
|---|---|---|---|---|
| **PDisorg** | | | | |
| **Boys** | 1,92 | 10.63 | .0016 | Hi .733/Lo 3.890 |
| SES | | | ns | |

| | | | | |
|---|---|---|---|---|
| Girls | 1,90 | 14.89 | .0002 | Hi -.071/Lo 2.083 |
| SES | | | ns | |

Neither boys' nor girls' results change much when SES is omitted. PDisorg's range in this sample is, for boys (-2.000 to 20.000) and for girls (-2.000 to 15.000), where a high value indicates more disorganization and a negative value suggests super efficiency.

AO

| | | | | |
|---|---|---|---|---|
| Depress | | | | |
| Boys | 1,92 | 15.72 | .0001 | Hi -1.095/Lo 1.224 |
| SES | | | ns | |
| Girls | 1,90 | 14.62 | .0002 | Hi -.567/Lo .922 |
| SES | 1,90 | 10.05 | .0021 | |

The significance levels raise for boys and especially for girls relative to AO when SES is omitted. What is further instructive here is that Depress is unaffected by SES for boys, but powerfully affected by SES for girls. AO effects are even greater, however, for both sexes.

AO

| | | | | |
|---|---|---|---|---|
| Dependt | | | | |
| Boys | | | ns | |
| SES | | | ns | |
| Girls | 1,90 | 7.07 | .0093 | Hi .059/Lo .125 |
| SES | | | ns | |

Self-effacing dependency is unaffected by AO plus SES for boys; girls' Dependt is affected by AO but not SES.

AO

| | | | | |
|---|---|---|---|---|
| Conform | | | | |
| Boys | 1,92 | 7.47 | .0075 | Hi .238/Lo .154 |
| SES | | | ns | |
| Girls | 1,90 | 6.95 | .0099 | Hi .258/Lo .175 |
| SES | | | ns | |

Conventional conforming behavior is generally viewed positively in school. This behavior pattern appears at increased levels in both boys and girls whose parents have a higher AO, and the level of Conform is unaffected by SES.

AO

Tasks 1-13

Few relations are detectable in the task scores of the effects of AO or SES. There are so few of these, in fact, that they must be considered statistically chance events.

## Parental Support of Learning

Support was noted in earlier discussion to resemble in several respects the AO variable. Questions were raised at that time about how well it might serve as a substitute for AO. This theme will be reviewed in the present discussion.

When the sample was partitioned into Hi and Lo AO, AO (boys) predicted Support only with SES removed (5.39/.0224), with this dropping to a nonsignificant level with SES included. AO strongly predicted

Support for girls (21.00/.0001) irrespective of the presence of SES. The reverse of this operation involves dividing the samples into Hi and Lo Support. In this analysis Support strongly accounts for AO. Further, SES accounts for a significant amount of the AO variance when the samples are divided in this way:

Support

| | | | | |
|---|---|---|---|---|
| AO | | | | |
| Boys | 1,97 | 14.49 | .0002 | Hi 74.42/Lo 65.97 |
| SES | 1,97 | 8.06 | .0055 | |
| Girls | 1,95 | 20.68 | .0001 | Hi 76.16/Lo 65.35 |
| SES | 1,95 | 13.11 | .0005 | |

Substantial amounts of variance are accounted for by the combination of Support and SES (boys .201; girls .256) when judged from the $R^2$ for AO. The probability level for Support's effect on boys increases slightly with SES removed (16.38/.0001).

Comparing the two sets of figures suggests that Support better predicts AO than AO predicts Support. This is also reflected in the $R^2$ findings for AO as predictor (boys .072; girls .190), with SES included. Variance figures were higher for both sexes predicting from Support than predicting from AO. The bi-directional disparity is not simply due to SES-to-dependent variable differences. Consequently, the two variables cannot be viewed as simply interchangeable.

AO turns out to be superior in accounting for variance of the other parent/family variables, except as follows:

Support

| | | | | |
|---|---|---|---|---|
| Nurt | | | | |
| Boys | 1,98 | 8.99 | .0034 | Hi 39.38/Lo 36.29 |
| SES | 1,98 | | ns | |
| Girls | 1,96 | 11.06 | .0013 | Hi 37.49/Lo 34.10 |
| SES | | | ns | |
| FavIndx | | | | |
| Boys | | | ns | |
| SES | 1,98 | 14.72 | .0002 | |
| Girls | 1,96 | 4.68 | .0330 | Hi 2.45/Lo 2.34 |
| SES | 1,96 | 12.28 | .0007 | |

In the case of Nurt, substantial prediction is achieved by Support for both sexes. For FavIndx the prediction is almost identical for the SES component when sorted either by AO or Support. What changes is that Support better predicts girls' FavIndx. The inference about predictions of Cont, HES, and Singfac from AO versus Support are indirect, since these particular runs were not completed using Support as the independent variable. While exact estimates are unavailable, the correlational evidence does not suggest that Support would be superior.

Among the school-family interview data, AO relates more strongly to all than does Support, except for IntInvl:

Support

| | | | | |
|---|---|---|---|---|
| IntInvl | | | | |
| Boys | 1,83 | 5.62 | .0201 | Hi 2.27/Lo 1.94 |
| SES | 1,83 | 14.84 | .0002 | |

| | | | | |
|---|---|---|---|---|
| Girls | 1,83 | 5.00 | .0281 | Hi 2.14/Lo 1.81 |
| SES | 1,83 | 16.36 | .0001 | |

The prediction from Support changes slightly for boys with SES removed (6.87/.0104).

For the school variables Achieve, Ability, GPA, and ChGrade, AO consistently outperforms Support as a predictor. No further analyses need be presented regarding these. Attend is not predicted by either Support or AO.

As was true for AO, Support does not effectively predict Tasks 1-13, with the overall results at chance levels. AO is markedly superior to Support, however, for predicting the remaining child variables from the Checklist and self-report. Taking all dependent variables into account, AO outperforms Support.

## Parental Generativity

The form of the generativity used in the analyses of this section differs slightly from the remaining ones in this chapter in not being based on a median split. The dichotomized version of Singfac was instead divided rationally at the 0 point that divides plus and minus scores. The 119 cases having minus scores were identified as of Hi generativity and the 89 cases with plus scores as of Lo generativity. Since Singfac was derived by totally different operations from AO and Support, it is presented here in its entirety. The code name for this dichotomized version of Singfac is Facode.

Facode

| | | | | |
|---|---|---|---|---|
| AO | | | | |
| Boys | | | ns | |
| SES | 1,95 | 7.42 | .0077 | |
| Girls | 1,91 | 5.15 | .0257 | Hi 73.31/Lo 67.28 |
| SES | 1,91 | 4.97 | .0283 | |
| Cont | | | | |
| Not available | | | | |
| Support | | | | |
| Not available | | | | |
| HES | | | | |
| Boys | | | ns | |
| SES | 1,96 | 17.15 | .0001 | |
| Girls | | | ns | |
| SES | 1,92 | 7.32 | .0081 | |
| Nurt | | | | |
| All findings are ns for both sexes | | | | |
| FavIndx | | | | |
| Boys | | | ns | |
| SES | 1,96 | 10.75 | .0015 | |
| Girls | | | ns | |
| SES | 1,92 | 7.83 | .0062 | |

When SES is removed, AO's contribution rises for girls (7.16/.0088); HES' increases for boys (9.98/.0021); and FavIndx's rises for both sexes (boys 7.62/.0069; girls 4.21/.0430). Due to the SES-HES linkage, it is not possible to determine the most appropriate adjustment for HES. Since FavIndx is also a demographic variable that may compete with SES for variance, again it is not possible to state how much adjustment is warranted. In any event, Facode (Singfac) appears not to compete with AO but, instead, to represent a potential separate predictor of the dependent variables, which will next be considered.

Facode

| | | | | |
|---|---|---|---|---|
| ParAtnd | | | | |
| Boys | | | ns | |
| SES | 1,82 | 14.78 | .0002 | |
| Girls | | | ns | |
| SES | 1,81 | 15.23 | .0002 | |
| Contact | | | | |
| All findings are ns for both sexes | | | | |
| IntInvl | | | | |
| Boys | 1,82 | 4.18 | .0441 | Hi 2.24/Lo 1.93 |
| SES | 1,82 | 10.37 | .0018 | |
| Girl | | | ns | |
| SES | 1,81 | 12.79 | .0006 | |
| AcadSat | | | | |
| All findings are ns for both sexes | | | | |
| Expect | | | | |
| Boys | | | ns | |
| SES | 1,82 | 11.24 | .0012 | |
| Girls All findings are ns for girls | | | | |

Probabilities change in the tabled analyses in two instances for boys with SES removed: ParAtnd (5.37/.0230) and IntInvl (9.44/.0029). In general, the relationships here are present for SES and not for Facode.

Thus, Facode is weak for prediction of parent behaviors as sampled by the school-family interview. Child variables are next reviewed.

Facode

| | | | |
|---|---|---|---|
| Attend | | | |
| All findings are ns for both sexes | | | |
| Achieve | | | |
| Boys | | | ns |
| SES | 1,94 | 12.46 | .0006 |
| Girls | | | ns |
| SES | 1,92 | 16.15 | .0001 |
| Ability | | | |
| Boys | | | ns |
| SES | 1,95 | 9.56 | .0026 |
| Girls | | | ns |
| SES | 1,92 | 17.62 | .0001 |
| GPA | | | |
| Boys | | | ns |
| SES | 1,93 | 9.93 | .0022 |
| Girls | | | ns |
| SES | 1,90 | 9.55 | .0027 |
| ChGrade | | | |
| Boys | | | ns |
| SES | 1,82 | 5.02 | .0278 |
| Girls | | | ns |
| SES | 1,81 | 4.51 | .0367 |

Findings that would change if SES were removed are Achieve (girls 5.05/.0270); Ability (boys 7.06/.0093; girls 5.39/.0225); and GPA (girls 3.97/.0494). It is notable that Facode does not contribute to any of these school variables except with SES in the equations. Facode would thus appear to offer little to AO in a multiple prediction sense.

Facode

| | | | |
|---|---|---|---|
| AcadOcc | | | |
| Boys | | | ns |
| SES | 1,82 | 5.02 | .0278 |
| Girls All findings are ns for girls | | | |
| SlfConc | | | |
| All findings are ns for both sexes | | | |
| Depress | | | |
| Boys | 1,93 | 4.34 | .0399 |
| SES | | | ns |
| Girls | | | ns |
| SES | 1,91 | 13.82 | .0003 |
| PDisorg | | | |
| All findings are ns for both sexes | | | |
| Dependt | | | |
| All findings are ns for both sexes | | | |
| Conform | | | |
| All findings are ns for both sexes | | | |
| Tasks 1-13 | | | |
| All findings are essentially ns for both sexes | | | |

Considering all of the foregoing findings, Facode (Singfac) is a relatively weak predictor of the dependent variables, giving up most of its variance when SES is present in the equations. It appears likely that in prediction equations containing AO and SES, this version of the generativity variable will add little to the understanding of these dependent measures.

## Parental Nurturance/Affection

Nurt is from the Direct Parent Interview as is AO, but represents an apparently quite different aspect of parent behavioral tendencies. It is considered next.

Nurt

| | | | | |
|---|---|---|---|---|
| AO | | | | |
| Boys | 1,97 | 10.92 | .0013 | Hi 73.75/Lo 66.16 |
| SES | 1,97 | 5.54 | .0206 | |
| Girls | | | ns | |
| SES | 1,95 | 10.65 | .0015 | |

The relationship between Nurt and AO rises with SES removed for boys (15.02/.0002) but not for girls. Variance in AO attributable to Nurt plus SES is: boys (17.5%); girls (11.5%). Nurt is sufficiently independent of AO possibly to serve along with it as a co-predictor of the dependent variables in the study. Its relations with the other independent variables will be examined first, however, before looking at Nurt's value as a predictor of the dependent variables.

Nurt

| | | | | |
|---|---|---|---|---|
| **Cont** | | | | |
| **Boys** | | | ns | |
| SES | 1,98 | 5.95 | .0166 | |
| **Girls** | All findings are ns for girls | | | |

This is an especially important negative finding that remains unchanged whether SES is removed or included. One widely published model of child-rearing behavior (Schaefer, 1971) anticipates that Nurt and Cont will be orthogonal or independent--and thus they appear to be.

Nurt

| | | | | |
|---|---|---|---|---|
| **HES** | | | | |
| This set of analyses was not run due to SES-HES linkage | | | | |
| **Support** | | | | |
| **Boys** | 1,98 | 10.21 | .0019 | Hi 8.62/Lo 7.52 |
| SES | | | ns | |
| **Girls** | 1,96 | 4.16 | .0441 | Hi 7.64/Lo 6.85 |
| SES | | | ns | |
| **Singfac** | | | | |
| **Boys** | | | ns | |
| SES | 1,98 | 18.90 | .0001 | |
| **Girls** | | | ns | |
| SES | 1,96 | 4.74 | .0320 | |
| **FavIndx** | | | | |
| **Boys** | | | ns | |
| SES | 1,98 | 13.11 | .0005 | |
| **Girls** | 1,96 | 8.49 | .0044 | Hi 2.47/Lo 2.32 |
| SES | 1,96 | 14.45 | .0003 | |

The boys' probability for Support changes with SES removed (12.53/.0006). Singfac remains unchanged when SES is removed. Singfac and Nurt are clearly unrelated when SES is included as a covariate. This finding is congruent with separate correlational analyses for boys and girls representing experimental and control cases combined. The boys' results for FavIndx become significant when SES is removed (5.00/.0276). Thus, while the girls' results for FavIndx are directly interpretable, it is less clear how to call the shift of the boys' probability level because of the inherent relation between FavIndx and SES as demographic factors.

The overall relations between Nurt and the other independent variables are encouragingly modest. This finding suggests that Nurt may be capable of contributing independently to efforts at multivariate prediction. With this in mind, Nurt's status as predictor of dependent variables will be studied.

Nurt

| | | | | |
|---|---|---|---|---|
| ParAtnd | | | | |
| Boys | 1,83 | 13.72 | .0004 | Hi 3.29/Lo 2.06 |
| SES | 1,83 | 15.80 | .0001 | |
| Girls | | | ns | |
| SES | 1,83 | 18.73 | .0001 | |

Substantial variance in ParAtnd is associated with these predictors (boys 29.8%; girls 18.7%). If SES is removed, the boys' probability changes (19.36/.0001).

Nurt

| | | | | |
|---|---|---|---|---|
| Contact | | | | |
| All findings are ns for both sexes | | | | |
| IntInvl | | | | |
| Boys | 1,83 | 5.32 | .0236 | Hi 2.27/Lo 1.94 |
| SES | 1,83 | 12.84 | .0006 | |
| Girls | | | ns | |
| SES | 1,83 | 14.94 | .0002 | |

For boys the relation of Nurt and IntInvl rises to 8.52 (.0045) with SES removed. Girls remain unchanged with SES removed. The $R^2$ computed variance between the combination of SES and Nurt as predictors of IntInvl is as follows: boys 20.5%, girls 15.3%, with girls due to SES only.

Nurt

| | | | | |
|---|---|---|---|---|
| AcadSat | | | | |
| Boys | 1,83 | 7.24 | .0086 | Hi 2.28/Lo 1.71 |
| SES | | | ns | |
| Girls All findings are ns for girls | | | | |
| Expects | | | | |
| Boys | | | ns | |
| SES | 1,83 | 15.19 | .0002 | |
| Girls All findings are ns for girls | | | | |

It is evident across these school-family interview variables that Nurt for girls is unimportant, while SES significantly predicts the behavior of their parents in areas of home-school behavior. On the other hand, for boys both Nurt and SES work together to influence home-school relations of these parents. School variables are reviewed next.

Nurt

| | | | | |
|---|---|---|---|---|
| Attend | | | | |
| All findings are ns for both sexes | | | | |
| Achieve | | | | |
| Boys | | | ns | |
| SES | 1,96 | 11.26 | .0011 | |
| Girls | | | ns | |
| SES | 1,94 | 18.28 | .0001 | |
| Ability | | | | |
| Boys | 1,97 | 6.03 | .0159 | Hi .376/Lo .025 |
| SES | 1,97 | 10.62 | .0015 | |
| Girls | | | ns | |
| SES | 1,96 | 24.15 | .0001 | |

Prediction of boys' Ability from Nurt rises when SES is removed (9.81/.0023). Girls' prediction from Nurt does not change.

Nurt

| | | | | |
|---|---|---|---|---|
| GPA | | | | |
| Boys | 1,95 | 4.19 | .0435 | Hi 3.98/Lo 3.69 |
| SES | 1,95 | 10.49 | .0017 | |
| Girls | | | ns | |
| SES | 1,94 | 15.57 | .0002 | |

Prediction of boys' GPA from Nurt increases with SES removed (6.87/.0102).

Nurt

| | | | | |
|---|---|---|---|---|
| ChGrade | | | | |
| Boys | 1,83 | 8.03 | .0058 | Hi 5.57/Lo 4.54 |
| SES | 1,83 | 4.18 | .0040 | |
| Girls | | | ns | |
| SES | 1,83 | 5.77 | .0185 | |

The pattern for the school variables resembles that for the school-family data: SES is the principal determinant for girls, but both Nurt and SES together influence boys' school functioning. Again on ChGrade, the boys' probability level increases when SES is removed (10.26/.0019); thus, inclusion of SES in the prediction provides a more realistic estimate for boys of the contribution of Nurt to their school functioning. What has been said of SES's contribution here may equally be said of HES--something that will be considered later. A final set of dependent variables must first be analyzed.

Nurt

| | | | | |
|---|---|---|---|---|
| AcadOcc | | | | |
| Boys | | | ns | |
| SES | 1,92 | 7.07 | .0092 | |
| Girls | All findings are ns for girls | | | |
| SlfConc | | | | |
| Boys | All findings are ns for boys | | | |
| Girls | 1,86 | 8.81 | .0039 | Hi -32.36/Lo -8.58 |
| SES | 1,86 | 5.70 | .0192 | |

| | | | |
|---|---|---|---|
| Depress | | | |
| Boys | | | ns |
| SES | 1,95 | 4.53 | .0358 |
| Girls | | | ns |
| SES | 1,95 | 18.54 | .0001 |
| PDisorg | | | |
| Not available for boys or girls | | | |
| Dependt | | | |
| All findings are ns for both sexes | | | |
| Conform | | | |
| Boys | | | ns |
| SES | 1,95 | 4.45 | .0376 |
| Girls All findings are ns for girls | | | |
| Tasks 1-13 | | | |
| All findings are essentially ns for all analyses | | | |

Predictions from Nurt to these dependent variables contributed little beyond SES's contribution except for girls' SlfConc.

Reviewing now the overall picture for Nurt suggests that it has some independence from AO and other independent variables of the study; it accounts for considerable additional predictive efficiency relative to the dependent variables from the school-family interview and the school data, but only for boys; and it contributes little to the Checklist variables for either sex but does add measurably to the prediction of girls' SlfConc. Additional data will later be considered regarding the relations between the factor derived Checklist behavioral components and the combination of Nurt and Cont as predictors, in a later chapter. The inferential review turns next to Nurt's orthogonal complement, Cont, to determine whether it exerts influence on the dependent variables.

## Parental Control/Dominance

Relations between Cont and the other independent variables can easily be summarized. Other than for SES effects, no reliable predictive relations exist between Cont and the independent variables. There is a single exception to this:

Cont

| | | | | |
|---|---|---|---|---|
| Singfac | | | | |
| Boys | | | ns | |
| SES | 1,98 | 16.18 | .0001 | |
| Girls | 1,96 | 4.32 | .0404 | Hi 1794.36/Lo -1896.71 |
| SES | | | ns | |

With SES removed, significance levels rise for both groups (boys 4.49/ .0367; girls 5.16/.0254). It is noted from the means above that Hi Cont is associated with lower generativity among the parents of girls.

Cont fails to predict any of the school-family relations variables except when SES is removed; SES, however, contributes heavily to prediction of ParAtnd and IntInvl for both sexes and to Expects for boys only. Similarly, Cont fails to predict any of the school variables, unless SES is removed. There is one exception to this:

Cont

| | | | |
|---|---|---|---|
| GPA | | | |
| Boys | | | ns |
| SES | 1,95 | 12.95 | .0005 |

| | | | | |
|---|---|---|---|---|
| Girls | 1,94 | 4.19 | .0434 | Hi 3.94/Lo 4.20 |
| SES | 1,94 | 14.43 | .0003 | |

The girls' finding for Cont increases in significance when SES is not included (5.77/.0187). Lower Cont is associated with higher GPA for girls.

Cont does not reliably predict any of the remaining dependent child measures.

Overall, it must be concluded that Cont is not an effective predictor of the dependent variables, with only one minor exception (GPA). It may, nevertheless, be of value to examine the contribution of Cont in conjunction with Nurt and to inspect their possible interactions. More of this will be described later.

### Home Environment Scale

The final independent variable in this chapter to be evaluated is HES. As has been repeatedly stated, it and SES measure much common territory, making it difficult to extricate the variance of the one from the other. The approach taken here, therefore, is simply one of asking whether a knowledge of HES adds anything to the prediction of the dependent measures that would not be available from SES alone. Relations to the other independent variables are, however, presented first and are informative.

HES

| | | | | |
|---|---|---|---|---|
| AO | | | | |
| Boys | 1,95 | 6.53 | .0122 | Hi 73.45/Lo 67.13 |
| SES | | | ns | |
| Girls | 1,91 | 9.41 | .0028 | Hi 74.72/Lo 66.68 |
| SES | | | ns | |

Although SES is ns for both groups, its probability is less than .10 in both cases, causing considerable rise in predictive efficiency if SES is removed (boys 11.48/.0010; girls 13.65/.0004). It is evident here that SES does not as strongly relate to AO as does HES, even when the effect of SES is first assigned before considering that of HES.

Next, it is noted that the relations between HES and three independent variables are unavailable: Support, Cont, and Singfac, so no further comment can be made regarding them.

HES

| | | | | |
|---|---|---|---|---|
| Nurt | | | | |
| Boys | 1,96 | 8.52 | .0044 | Hi 39.53/Lo 36.30 |
| SES | | | ns | |
| Girls | All findings are ns for girls | | | |

If SES is removed, the predictive relation of HES to Nurt rises (11.58/.0010).

The findings for FavIndx are the most interesting, because these analyses look simultaneously at the three home/family environment variables:

HES

| | | | | |
|---|---|---|---|---|
| FavIndx | | | | |
| Boys | | | ns | |
| SES | 1,96 | 9.56 | .0026 | |
| Girls | 1,92 | 4.16 | .0442 | Hi 2.46/Lo 2.35 |
| SES | 1,92 | 6.15 | .0149 | |

Significance of predictions from HES to FavIndx increases when SES is excluded (boys 9.57/.0026; girls 7.42/.0077). More favorable FavIndx is found with higher HES for girls and for both sexes with SES removed. SES cannot by itself adequately account for FavIndx, an entirely new demographic index, without the help of HES. Therefore, HES, as a functional indicator of the favorability of the home environment, is seen as fundamentally or inherently related to these demographic indexes and not merely incidentally or empirically related in a correlational sense. Moreover, HES alone predicts FavIndx as well as (boys' p = .0026) or better than SES (girls' p = .0077). The contribution of HES to the prediction of the dependent variables can now be analyzed.

HES

| | | | |
|---|---|---|---|
| ParAtnd | | | |
| Boys | | | ns |
| SES | 1,82 | 14.08 | .0003 |
| Girls | | | ns |
| SES | 1,81 | 13.24 | .0005 |

The HES findings rise with SES removed: boys (5.33/.0235) and girls (5.79/.0184). SES alone could predict ParAtnd.

HES

---

Contact

All findings are ns for both sexes

IntInvl

| | | | | |
|---|---|---|---|---|
| Boys | | | ns | |
| SES | 1,82 | 10.72 | .0016 | |
| Girls | 1,81 | 10.17 | .0020 | Hi 2.20/Lo 1.73 |
| SES | 1,81 | 9.66 | .0026 | |

---

Significance levels rise for prediction from HES with SES removed: boys (5.37/.0230) and girls (15.31/.0002). SES alone cannot capture the variance for girls.

HES

---

AcadSat

All findings are ns for both sexes

Expects

| | | | |
|---|---|---|---|
| Boys | | | ns |
| SES | 1,82 | 17.66 | .0001 |

Girls All findings are ns for girls

---

To sum up the findings for these school-family variables, SES could substitute for HES except in predicting IntInvl, for which the contribution of HES is invaluable (girls $R^2$ .236; boys $R^2$ .164). The school variables are now discussed.

### HES

| | | | | | |
|---|---|---|---|---|---|
| Attend | | | | | |
| | All findings are ns for both sexes | | | | |
| Achieve | | | | | |
| | Boys | | | ns | |
| | SES | 1,94 | 9.69 | .0024 | |
| | Girls | | | ns | |
| | SES | 1,92 | 14.04 | .0003 | |
| Ability | | | | | |
| | Boys | 1,95 | 4.34 | .0400 | Hi .362/Lo .044 |
| | SES | 1,95 | 8.12 | .0054 | |
| | Girls | | | ns | |
| | SES | 1,92 | 16.43 | .0001 | |
| GPA | | | | | |
| | Boys | | | ns | |
| | SES | 1,93 | 8.79 | .0039 | |
| | Girls | | | ns | |
| | SES | 1,90 | 9.48 | .0028 | |
| ChGrade | | | | | |
| | Boys | | | ns | |
| | SES | 1,82 | 5.23 | .0247 | |
| | Girls | | | ns | |
| | SES | 1,81 | 4.02 | .0484 | |

On Achieve, girls' significance level rises with SES removed (7.01/.0096). Both groups change on Ability prediction with SES removed (boys 10.26/.0019; girls 3.98/.0490). With SES removed, boys' GPA is affected by HES at an increased level (4.14/.0447). What is, nevertheless, apparent is that these school variables could be nicely predicted from SES alone, without the help of HES, except in the instance of boys' Ability, which is more fully predicted with HES included.

HES

| | | | |
|---|---|---|---|
| AcadOcc | | | |
| Boys | | | ns |
| SES | 1,90 | 7.66 | .0069 |
| Girls All findings are ns for girls | | | |

Girls' AcadOcc is successfully predicted by HES when the nonsignificant SES is removed (1,87/5.08/.0267). In this case, the inclusion of SES as covariate actually obscures the relationship between HES and AcadOcc.

HES

| | | | |
|---|---|---|---|
| SlfConc | | | |
| All findings are ns for this variable | | | |
| Depress | | | |
| Boys | | | ns |
| SES | 1,93 | 4.48 | .0370 |
| Girls | | | ns |
| SES | 1,91 | 12.70 | .0006 |
| Dependt | | | |
| All findings are ns for this variable | | | |
| Conform | | | |
| Boys | | | ns |
| SES | 1,93 | 4.08 | .0463 |
| Girls All findings are ns for girls | | | |

Tasks 1-13

All findings are essentially ns for both sexes

---

HES is properly related to the other independent variables in the sense of not greatly overlapping with them. It does, nevertheless, greatly overlap SES and FavIndx. HES adds to the prediction of school-family variables in the instance of IntInvl for girls, appearing in this example to be more important than SES. Among the school variables, it adds to the prediction of Ability for boys, but is otherwise conveying no quantitative information not otherwise available from SES. HES is needed in the prediction of AcadOcc for girls but does not help for boys. It does not materially assist in the prediction of the remaining child dependent variables beyond what would be possible on the basis of SES alone.

## Conclusions for Independent Variables

With the evidence now displayed for the independent variables individually, it is possible to arrive at some assessment of the various measures employed in relation to one another. Without question, as a predictor of the dependent variables considered here, AO has high utility and by far outperforms all other independent variables. Support and Nurt are of secondary importance as predictors, both being about equal. Facode (Singfac), HES, and Cont contribute only a few predictions each that are not as well accounted for by SES alone. At least one prediction each from Facode and HES, nevertheless, may be of special value because they are not well represented relative to particular dependent variables by any other independent variable.

The predictive results covered in this chapter, including some for Support that were not directly stated because they appeared redundant of AO, are summarized below by dependent variable. Following each listed dependent variable are listed its best predictors for each sex, together with the associated probability level rounded to its nearest significant integer, which may appear in the second, third, or fourth position following its decimal. All results listed below are from the ANOVA runs that include the covariate SES. It is acknowledged that this method of inclusion undoubtedly causes HES to underperform as a predictor, but this is unavoidable.

Summary of Predictors

| | | |
|---|---|---|
| ParAtnd | Boys | Nurt (.0004), AO (.02) |
| | Girls | AO (.003), Support (.006) |
| Contact | Boys | AO (.01) |
| | Girls | None |
| IntInvl | Boys | Support (.02), Nurt (.02), Facode (.04) |
| | Girls | HES (.002), AO (.01), Support (.03) |
| AcadSat | Boys | Nurt (.009) |
| | Girls | AO (.004) |
| Expects | Boys | None |
| | Girls | AO (.009) |
| Attend | Boys | None |
| | Girls | None |
| Achieve | Boys | AO (.0001)[1] |
| | Girls | AO (.0001), Support (.001) |
| Ability | Boys | AO (.0001), Nurt (.02), HES (.04) |
| | Girls | AO (.0001), Support (.02) |
| GPA | Boys | AO (.0001), Nurt (.04) |
| | Girls | AO (.0001), Support (.02), Cont (.04) |

| | | |
|---|---|---|
| ChGrade | Boys | AO (.005), Nurt (.006) |
| | Girls | AO (.0001) |
| AcadOcc | Boys | None |
| | Girls | AO (.04), HES (about .03--see earlier text) |
| SlfConc | Boys | AO (.003) |
| | Girls | Nurt (.004), Support (.02), AO (.03) |
| PDisorg | Boys | AO (.002)[2] |
| | Girls | AO (.0002)[2] |
| Depress | Boys | AO (.0001), Facode (.04) |
| | Girls | AO (.0002), Support (.03) |
| Dependt | Boys | None |
| | Girls | AO (.009) |
| Conform | Boys | AO (.008) |
| | Girls | AO (.01) |
| Tasks 1-13 | Boys | None |
| | Girls | None |

[1] Probabilities shown as .0001 typically are much less than this and though not so designated should usually be read "less than."

[2] By computer oversight, PDisorg was not computed for Support, HES, Nurt, or Cont. These may, in fact, contribute to prediction.

In the foregoing Summary of Predictors, all predictors are displayed in rank order of importance (probability) from left to right. If the Task 1 - Task 13 entry in the Summary is treated as a single entry, there are 17 statements each for boys and girls regarding what most effectively predicts the dependent variables. For boys, in nine instances AO is the selected best predictor; Nurt has this distinction two times; and Support one time. Five of the 17 analyses reviewed contained no satisfactory predictor for boys. For girls, AO was the selected predictor 12 times, Nurt one time, and HES one time. No predictor was identified three times for girls.

The Summary of Predictors can be used in other ways. It shows that Attend and Tasks 1-13 simply were not accounted for by the independent variables at hand, nor did SES reliably predict these. It also shows that different predictors are effective in accounting for the same variables as a function of sex of child. Examples of this include ParAtnd, IntInvl, and AcadSat--in fact sex differences appear for all of the school-family variables. By contrast, AO is the first order predictor for both boys and girls for the major school variables. ChGrade fits into this pattern, further supporting the decision to treat it as a child indicator. The Direct Child Interview variables AcadOcc and SlfConc do not fit this pattern. Finally, it appears that AO is the most promising predictor relative to the School Behavior Checklist derivatives.

The careful reader may by this time have wondered what happened to FavIndx as an independent variable. Surely it has not been examined in its own series of ANOVA's in the manner of the other independent variables. Moreover, it is basically unanticipated in either the research or theoretical literatures. By way of contrast, the remaining independent variables represent established constructs; they are relatively unidimensional or cohesive internally; and they derive from rich literatures, even though in one instance (i.e., Singfac) the construct has not previously been operationally defined as a psychometric entity. For these reasons, FavIndx is better treated as a variable for further study and development. What makes sense for such a new construct is to examine, as was done in this chapter, how it relates to the other independent variables and especially to those which fall into the same general domain such as SES and HES. It was also studied in Chapter IV correlationally to help begin defining its construct boundaries. This is enough to ask of it for now.

The Summary of Predictors, of course, cannot establish the independence of the suggested predictors listed for each dependent variable, nor does it indicate their possible overlap. Such inferences must be established empirically in analyses that bring these variables together into prediction equations. Some of this is attempted later in this report.

# VI. NURTURANCE AND CONTROL

The present chapter moves through a very familiar theoretical terrain. It considers the confluence of nurturance or affection with control or dominance. The interrelations of these have been hypothesized to be orthogonal to one another with Schaefer's (1971) dimensionalized model of the parenting or child-rearing function. In Chapter V of this report, evidence was presented that the variables Nurt and Cont are in fact orthogonal to one another. Schaefer views control as one pole of a dimension that has as its opposite pole, autonomy. Affection or love is one pole of another bipolar dimension that has hostility as its second pole. This configurational model has been studied in a number of manners (Schaefer, 1971) and underlies the widely used Parent Attitude Research Inventory (PARI) developed by Schaefer and others.

## Study Design

The present study expands on the design of Chapter V, moving to a two-factor analysis of variance with SES as covariate. The factors are Cont and Nurt. Again, as in Chapter V, these are divided at the median and analyzed separately for boys and girls. Thus, although the sex effect is not examined per se, it is included in the design. The result is a series of analyses of major variables from the HOPE followup study that consider simultaneously four variables (Nurt, Cont, SES, Sex) and the interaction of two of them (Nurt X Cont). By the time the present analyses were carried out, the final School Behavior Checklist variables were available and are accordingly used.

The methods of presentation that were followed in Chapter V will also be used here. The specific rationale for this approach to reporting will be found there as well. A difference between the two presentations is that the tabular displays are now expanded to include the additional factor and the interaction term. Analyses for boys and girls will be treated separately in order to achieve greater clarity of presentation. Further, the similarities and differences between the results for the sexes will be the subject of scrutiny.

It might at first seem that the main effects and SES effects reported for Nurt and Cont in Chapter V would apply here, albeit in the context of more abbreviated designs having one fewer main effect (i.e., less either Nurt or Cont) and excluding the interaction term (Nurt X Cont). While this may seem to be the case, in reality it is not. What is now different is that the inclusion in the analyses of a second main effect and an interaction term changes everything. Now, the variance pool on the dependent variable is repartitioned. For this reason, direct comparability cannot be expected between the results reported in Chapter V for Nurt, Cont, and SES and those that appear in this chapter. It is, accordingly, necessary in Chapter VI to report anew all effects. Likewise, variances accounted for on the dependent variables can be expected to change as a result of analyses performed from the two different perspectives, requiring that they be re-reported. Finally, a new set of Checklist factors of behavior observed in school are reported here. This all means the chapter is no rehash of Chapter V. Instead, it is a new look.

Nurt X Cont-Boys

| | | | | |
|---|---|---|---|---|
| HES | | | | |
| Nurt | 1,94 | 19.84 | .0001 | Hi 4.70/Lo 4.16 |
| Cont | | | ns | |
| N X C | | | ns | |
| SES | 1,94 | 17.40 | .0001 | $R^2$ .352 |
| FavIndx | | | | |
| Nurt | | | ns | |
| Cont | | | ns | |
| N X C | | | ns | |
| SES | 1,94 | 12.51 | .0006 | $R^2$ .152 |

Nurt X Cont-Girls

| | | | | |
|---|---|---|---|---|
| HES | | | | |
| Nurt | | | ns | |
| Cont | | | ns | |
| N X C | | | ns | |
| SES | 1,90 | 8.63 | .0042 | $R^2$ .099 |
| FavIndx | | | | |
| Nurt | 1,90 | 7.77 | .0065 | Hi 2.48/Lo 2.33 |
| Cont | | | ns | |
| N X C | | | ns | |
| SES | 1,90 | 11.50 | .0010 | $R^2$ .163 |

The foregoing are the only independent variables included in this series of analyses. Their inclusion allows examination of the extent to which SES adequately accounts for the home or family environment within which Nurt- and Cont-related parent behaviors occur. The present findings come off mixed; SES satisfactorily covers the variance of home environment for boys relative to FavIndx but not to SES; SES accounts among girls for the contribution of HES but not of FavIndx. In the two instances that SES does not fully cover the home environment variance, the independent variable Nurt is affected both times. Caution must, thus, be exercised in interpreting the meaning of Nurt effects not to conclude that they are totally independent of general home environment. The same care must be exerted in conceptualization of N X C results. Cont main effects, on the other hand, appear to be independent of home environment as measured by either HES or FavIndx, while the effects of SES are adequately represented in the analyses.

Nurt X Cont-Boys

| | | | | |
|---|---|---|---|---|
| ParAtnd | | | | |
| Nurt | 1,80 | 17.15 | .0001 | Hi 3.30/Lo 1.92 |
| Cont | | | ns | |
| N X C | | | ns | |
| SES | 1,80 | 14.30 | .0003 | $R^2$ .334 |
| Contact | | | | |
| All findings are ns | | | | |
| AcadSat | | | | |
| Nurt | 1,80 | 9.34 | .0030 | Hi 2.31/Lo 1.66 |
| Cont | | | ns | |
| N X C | | | ns | |
| SES | | | ns | $R^2$ .121 |
| Expects | | | | |
| Nurt | | | ns | |
| Cont | | | ns | |
| N X C | | | ns | |
| SES | 1,80 | 18.46 | .0001 | $R^2$ .205 |
| IntInvl | | | | |
| Nurt | 1,80 | 9.45 | .0029 | Hi 2.30/Lo 1.87 |
| Cont | | | ns | |

| | | | | |
|---|---|---|---|---|
| N X C | | | ns | |
| SES | 1,80 | 15.04 | .0002 | $R^2$ .264 |

Inspection of the results for these school-family interview variables reveals a substantial contribution of Nurt to ParAtnd and moderate contributions to AcadSat and IntInvl. Neither Cont nor Nurt X Cont contributes reliably to any of these variables. Respectable amounts of variance are accounted for in ParAtnd, IntInvl, and Expects.

Nurt X Cont-Girls

| | | | | |
|---|---|---|---|---|
| Par Atnd | | | | |
| Nurt | | | ns | |
| Cont | | | ns | |
| N X C | | | ns | |
| SES | 1,79 | 16.54 | .0001 | $R^2$ .196 |
| Contact | | | | |
| All findings are ns | | | | |
| AcadSat | | | | |
| All findings are ns | | | | |
| Expects | | | | |
| All findings are ns | | | | |
| IntInvl | | | | |
| Nurt | | | ns | |
| Cont | | | ns | |
| N X C | | | ns | |
| SES | 1,79 | 12.50 | .0007 | $R^2$ .183 |

School-family variables for girls are all nonsignificant for the main effects and the interaction term. Only SES reliably accounts for variance in two variables, ParAtnd and IntInvl. These results contrast notably with those for boys' families. The contrasts may be succinctly stated: the nurturance of boys' parents affects parents' attendance at school functions/events, satisfaction with their academic performance, and interest and involvement in their school learning; whereas for girls, parents' nurturance does not affect home-school relations as represented within the Nurt by Cont model of parenting.

Analyses of the nurturance-control model are next reported for the child school variables. Tabled references to groups mean: (1) Hi Nurt-Hi Cont, (2) Hi Nurt-Low Cont, (3) Lo Nurt-Hi Cont, and (4) Lo Nurt-Lo Cont. Means for the main effects are presented directly to the right of the effect whenever possible; otherwise they are labeled as needed.

Nurt X Cont-Boys

| | | | | |
|---|---|---|---|---|
| Attend | | | | |
| Nurt | | | ns | (1) 93.89 |
| Cont | | | ns | (2) 96.09 |
| N X C | 1,90 | 5.86 | .0175 | (3) 95.47 |
| SES | | | ns | (4) 94.19 $R^2$ .083 |
| Achieve | | | | |
| Nurt | | | ns | |
| Cont | | | ns | |
| N X C | | | ns | |
| SES | 1,92 | 12.99 | .0005 | $R^2$ .172 |
| Ability | | | | |
| Nurt | 1,93 | 5.52 | .0209 | Hi .355/Lo .009 |
| Cont | | | ns | |
| N X C | | | ns | |
| SES | 1,93 | 9.42 | .0028 | $R^2$ .177 |

| | | | | |
|---|---|---|---|---|
| GPA | | | | |
| Nurt | 1,91 | 5.77 | .0184 | Hi 3.99/Lo 3.65 |
| Cont | | | ns | |
| N X C | | | ns | |
| SES | 1,91 | 12.57 | .0006 | $R^2$ .202 |
| ChGrade | | | | |
| Nurt | 1,80 | 9.93 | .0023 | Hi 5.61/Lo 4.46 |
| Cont | | | ns | |
| N X C | | | ns | |
| SES | 1,80 | 6.15 | .0152 | $R^2$ .195 |

In addition to the contributions of SES to the school variables, Nurt adds significantly to the prediction of Ability, GPA, and ChGrade, with Hi Nurt being related to more favorable child outcomes. Cont by itself fails to add to the prediction of any of the school variables. Attend, which is not predicted by either Cont or Nurt, is predicted by their interaction. Planned comparisons suggest that group two (Hi Nurt-Lo Cont) is significantly higher than group one (Hi Nurt-Hi Cont). These findings contrast with those for girls, as shown below.

Nurt X Control-Girls

| | | | | |
|---|---|---|---|---|
| Attend | | | | |
| All findings are ns | | | | |
| Achieve | | | | |
| Nurt | | | ns | |
| Cont | | | ns | |
| N X C | | | ns | |
| SES | 1,90 | 18.05 | .0001 | $R^2$ .218 |
| Ability | | | | |
| Nurt | | | ns | |
| Cont | | | ns | |

| | | | | |
|---|---|---|---|---|
| N X C | | | ns | |
| SES | 1,90 | 20.28 | .0001 | $R^2$ .224 |
| GPA | | | | |
| Nurt | | | ns | |
| Cont | 1,88 | 5.57 | .0205 | Hi 3.95/Lo 4.25 |
| N X C | | | ns | |
| SES | 1,88 | 10.42 | .0018 | $R^2$ .178 |
| ChGrade | | | | |
| Nurt | | | ns | |
| Cont | | | ns | |
| N X C | | | ns | |
| SES | 1,79 | 5.00 | .0282 | $R^2$ .116 |

Girls' Ability and Achieve both relate more strongly to SES than do these scores for boys, while their scores for GPA and ChGrade are about comparably related to SES. Nurt fails to predict any of the girls' school variables, and the N X C interactions are all nonsignificant. In contrast with boys, Cont is important for girls' GPA, with Hi Cont predicting lower GPA. Although it does not attain statistical significance (p = .08), Cont (Hi .037/Lo .328) shows the same directional tendency, which was in fact a reliable difference before the addition of SES (4.48/.0370). So for boys, Nurt matters more and for girls Cont is somewhat more important.

Nurt X Cont-Boys

| | | | | |
|---|---|---|---|---|
| Depress | | | | |
| Nurt | | | ns | (1) .907 |
| Cont | | | ns | (2) -.923 |
| N X C | 1,91 | 5.08 | .0214 | (3) -.173 |
| SES | 1,91 | 3.95 | .0498 | (4) .852 $R^2$ .115 |

### Aggress

| | | | | |
|---|---|---|---|---|
| Nurt | | | ns | (1) 12.39 HiC 37.47 |
| Cont | 1,94 | 4.32 | .0404 | (2) 10.06 LoC 6.58 |
| N X C | 1,94 | 3.96 | .0494 | (3) 62.55 |
| SES | | | ns | (4) 3.10 $R^2$ .096 |

### ConAdpt

| | | | | |
|---|---|---|---|---|
| Nurt | (was 6.12/.0152; is 3.75/.0560) | | | |
| Cont | | | ns | |
| N X C | | | ns | |
| SES | 1,94 | 5.62 | .0198 | $R^2$ .122 |

### AnxDep

All findings are ns

### EgoDfns

All findings are ns

### Disorg

All findings are ns

### ShySrs

All findings all ns

### BlntMnp

| | | | | |
|---|---|---|---|---|
| Nurt | | | ns | |
| Cont | | | ns | |
| N X C | | | ns | |
| SES | 1,94 | 4.99 | .0279 | $R^2$ .057 |

### Restles

All findings are ns

### ActDfns

All findings are ns

### Agitate

All findings are ns

Antisoc

| | | | | |
|---|---|---|---|---|
| Nurt | | | ns | |
| Cont | 1,94 | 4.57 | .0351 | Hi 7.64/Lo .56 |
| N X C | | | ns | |
| SES | | | ns | |

AcadOcc

| | | | | |
|---|---|---|---|---|
| Nurt | | | ns | |
| Cont | | | ns | |
| N X C | | | ns | |
| SES | 1,88 | 4.60 | .0348 | $R^2$ .114 |

SlfConc

All findings are ns

Nurt (was 4.04/.0475; is 3.80/.0545)
(df 1,84 HiN -48.80/LoN -33.70)

---

Nurt X Cont-Girls

---

Depress

| | | | | |
|---|---|---|---|---|
| Nurt | | | ns | |
| Cont | | | ns | |
| N X C | | | ns | |
| SES | 1,89 | 13.72 | .0004 | $R^2$ .145 |

Aggress

All findings are ns

ConAdpt

| | | | | |
|---|---|---|---|---|
| Nurt | | | ns | |
| Cont | | | ns | |
| N X C | | | ns | |
| SES | 1,90 | 4.41 | .0385 | $R^2$ .059 |

AnxDep

| | | | | |
|---|---|---|---|---|
| Nurt | | | ns | (1) 40.78 |
| Cont | | | ns | (2) 12.52 |
| N X C | 1,90 | 5.85 | .0176 | (3) 14.02 |
| SES | | | ns | (4) 25.09 $R^2$ .122 |

EgoDfns

All findings are ns

Disorg

All findings are ns

ShySrs

All findings are ns

BlntMnp

| | | | | |
|---|---|---|---|---|
| Nurt | | | ns | (1) 27.23 |
| Cont | | | ns | (2) 8.16 |
| N X C | 1,90 | 5.54 | .0208 | (3) 8.89 |
| SES | | | ns | (4) 28.24 $R^2$ .073 |

Restles

| | | | | |
|---|---|---|---|---|
| Nurt | | | ns | (1) 6.53 |
| Cont | | | ns | (2) 2.48 |
| N X C | 1,90 | 4.80 | .0311 | (3) .01 |
| SES | | | ns | (4) 6.45 $R^2$ .063 |

ActDfns

All findings are ns

Agitate

All findings are ns

Antisoc

All findings are ns

AcadOcc

All findings are ns

SlfConc

| | | | | |
|---|---|---|---|---|
| Nurt | 1,81 | 9.05 | .0035 | Hi -32.52/Lo -7.70 |
| Cont | | | ns | |
| N X C | | | ns | |
| SES | 1,81 | 4.90 | .0297 | $R^2$ .168 |

---

Concurrent review of the boys' and girls' findings shows that Depress is affected by SES for both and by N X C for boys only. Planned comparisons show that mean 3 (Lo Nurt-Hi Cont) for boys is reliably higher than all three of the other means, i.e., more aggressive. ConAdpt is affected by SES for both sexes. AnxDep is not predicted for boys but for girls is related to the interaction N X C. Mean 1 differs reliably from means 2 and 3. That is, girls who experience parental Hi Nurt-Hi Cont are more AnxDep than is either of the two groups that is high on only one factor and low on the other. EgoDfns, Disorg, and ShySrs are not predicted by this model. SES is important to BlntMnp for boys; girls' BlntMnp scores are affected by the interaction of Nurt and Cont. While the interaction is significant, none of the means differs reliably from one another. Boys' Restles scores are not predicted by the model; girls' scores reveal a significant interaction, with no mean exceeding any other. The girls' pattern for both BlntMnp and Restles suggests that the extremes (Hi-Hi or Lo-Lo) result in higher dependent variable scores than do the mixtures (Hi-Lo or Lo-Hi). Agitate and ActDfns are unaffected by the model. Girls' Antisoc scores are unaffected; boys' scores are deleteriously affected by Cont. AcadOcc is unaffected by the model except that boys' scores are influenced by SES. Girls' SlfConc scores are affected favorably by Nurt; the same is basically true for boys as well, but was obscured by an automatically used, distorting SES covariate (i.e., as evidenced by the nonsignificant finding for SES). SES is also important to SlfConc for girls within the model.

If the finding for boys' SlfConc is included, there are nine reliable effects altogether (i.e., not counting SES effects) in this child behavior section of data. For boys, two of these effects are N X C, two are Cont, and one is Nurt; for girls N X C accounts for three effects, Cont for none, and Nurt for one. Thus, over one-half of the reliable non-SES effects on these child variables, within the Nurt X Cont model, result from the interaction of these variables (i.e., N X C accounts for five of nine findings). Coupling the N X C with the Cont effects, Cont enters into seven-ninths (around 78%) of the significant effects. This fact is in striking contrast to the low salience of the Cont in the univariate analyses of Chapter V.

Finally, it is noted that the parenting model functions differently in relation to sex for all of the significant effects, excepting the two fairly positively depicted characteristics, ConAdpt and SlfConc, for which the model relates similarly for both boys and girls. Relative to the problem behavior factors, as such, sex differences in the effects of the Nurt X Cont model are pervasive. Thus, different patterns of parenting behaviors and social class account for the occurrence of problem behavior complexes in boys as compared with girls.

## Trends Across Data Types

Trends for significant effects to appear were reviewed across the three data sets: school-family interviews, basic school variables, and other child behaviors. The model demonstrated effects, exclusive of SES effects, for 11 of the 24 variables in the boys' data, but only for five of 24 in the girls' data. Among boys, Nurt appeared prominently either as a main effect or in combination in the interaction for all of the school data (i.e., from both school-home relations and basic child school data), while for the problem behavior data of boys, Cont or Cont in interaction with Nurt assumed a more salient part. In the girls' data, only SES mattered for school-family relations. In their basic school data and again in the child problem behavior data, the interaction term, N X C, was the effect that most often stood out for girls, when the contribution of SES is not considered.

SES appeared to be an important ingredient of the Nurt X Cont predictive model, appearing for boys with about the same frequency as any of the other three components of the model (11 times each) but appearing for girls more often (nine times versus five times) than the other components, Nurt, Cont, and N X C. The two main effects and the interaction term were important for predicting the boys' dependent variables twice as often as for predicting those of girls (11 versus five). Sex differences in the pattern of effects were so pervasive in the pattern of effects that for the 18 variables that had some significant effect for either sex, boys and girls differed on 16 and matched on only two.

## Typology of Child Rearing

The foregoing two-factor analyses of variance actually imply a typology of parenting or child rearing behaviors. That is, a four-cell typology is implicit in the Hi Nurt/Lo Nurt by Hi Cont/Lo Cont classification. These four cells have earlier in this chapter been designated by the numerals 1-4 whenever it was necessary to indicate the four means associated with a significant interaction. To review, these were designated simply as (1) Hi Nurt-Hi Cont, (2) Hi Nurt-Low Cont, (3) Lo Nurt-Hi Cont, and (4) Lo Nurt-Lo Cont. These straightforward classification names have been used instead of assigning other construct means to them, thereby avoiding the risk of prematurely attaching surplus meaning to the categories. That practice of labeling continues in the presentation that follows. Nevertheless, some consideration is in order regarding the meaning of the categories, so this will be the next subject for discussion.

A fundamental question regarding the typology is whether certain categories inherently imply more favorable outcomes. In answering this, it is apparent that high nurturance or affection generally is regarded as a favorable circumstance, as opposed to its polar contrast, hostility. In actuality, however, the Lo Nurt end of the present Nurt scale does not in any simple sense represent hostility. Instead, the low end represents in descending order of importance: lack of verbal or physical expression of affection, rejection, and not giving help. These characteristics together certainly are correlated with rejection but lend Lo Nurt a broader meaning than simply hostility or rejection. It is, therefore, perhaps best simply to call it low nurturance or low expression of affection, with the understanding that this may sometimes indicate hostility or rejection.

In the foregoing connection it will be recalled that there is a trace of the hostility component in the control or dominance variable. Cont's composition is worth reviewing: dominance-restrictiveness, regimented or rule giving, and hostility and punitiveness. The opposites of the first and third of these components are perhaps best understood as being the absence of dominance-restrictiveness and of hostility-punitiveness. The polar opposite of the second component is promoting autonomy and responsibility. As in the case of Nurt, it is difficult to merge the meanings of the three polar opposites of Cont into a single construct label; however, the foregoing complex of meanings does accurately reflect that unlabeled pole of Cont. It is clear from the evidence already cited in this report that higher Cont has some negative implications. Unlike Nurt, however, one would tend to say about Cont that greater restrictiveness and rule giving have their place, depending on the developmental period in question, the real or imagined environmental threats to the child's well being, and, of course, some individual children from an early age manifest greater impulsiveness that makes these kinds of controlling parental strategies sometimes appear quite rational and appropriate. Thus, Hi Nurt is almost uniformly positive; Hi Cont is fairly negative but not uniformly so--it may at times be neutral or even positive. Unfortunately, the Cont score by itself does not differentiate among these possible interpretations, which is a problem for what will be attempted in this section, as will become more apparent.

Use of the typology permits the findings to be examined in another manner. Suppose that the SES-adjusted means of the four groups are compared to one another to examine their general trends, irrespective of whether the interaction term is significant. This is not an illogical procedure, since the interaction term can be statistically significant without any of the individual means being reliably different from one another; simultaneously individual means can be reliably different without this producing a significant interaction or main effect. If the means are compared in this way, based upon specific notions/predictions of which group should do well or better than others, it is possible to use probability theory to test the likelihood that a particular set of events would have occurred in a specified manner. This will be attempted for the school variables from parents and children, treated as a composite set of data. First, however, it will be necessary to examine some hypotheses regarding how the means should, as a whole, relate to the typology.

It has already been noted that Hi Nurt has a relatively uniform and unequivocal positive meaning. Second, Hi Nurt coupled with Lo Cont would appear to be more favorable than if combined with Hi Cont. Parents fitting into the Hi Nurt-Lo Cont category identified themselves and were rated as expressing love and affection, acceptance, and nurturance and protectiveness while being low in dominance-restrictiveness and hostility-punitiveness and promoting autonomy and responsibility in their children. All of this has a good ring to it and is congruent with making the prediction that these parents should also maintain more helpful school-family relations, and their children should do well in school.

When testing the foregoing hypothesis, there is no basis for expecting sex differences, unlike in the case of problem behavior complexes from the Checklist, as has earlier been discussed. Hence, the same prediction is made irrespective of sex and will be applied to the boys and girls separately. One variable from the proposed data set will not be used: Contact. The reasons that parents have contacts with school personnel are indeed complex. Sometimes Contact reflects the parent's generally active participatory involvement in the child's school learning, while in other families Contact is higher because the child has many academic and/or behavioral problems that have caused the parent to confer with school personnel. The complexities of this variable make it difficult, accordingly, to fit it to the typological model.

In the table of findings that follows, the typological category containing the largest mean (i.e., since for all a positive finding is thus indicated) is designated as a predictive hit by the placement of an *X* in column 2 under either sex for which that event occurs. An *O* will be placed as appropriate in the table to indicate any predictive miss (i.e., to show where the largest mean incorrectly appears). An overall probability will be computed, as well as for each sex.

Favorability of Hi Nurt-Lo Cont

| Variable | 1 Hi Nurt/ Hi Cont | | 2 Hi Nurt/ Lo Cont | | 3 Lo Nurt/ Hi Cont | | 4 Lo Nurt/ Lo Cont | |
|---|---|---|---|---|---|---|---|---|
| | B | G | B | G | B | G | B | G |
| AcadSat | O | O | | | | | | |
| Expects | | | | X | O | | | |
| IntInvl | tie | | X | X | | | | |
| ParAtnd | | | X | X | | | | |
| Attend | | | X | X | | | | |
| Achieve | | | X | X | | | | |
| Ability | | | X | X | | | | |
| GPA | | | X | X | | | | |
| ChGrade | O | O | | | | | | |

The findings generally comply with the predictions based on the model (p = .0000152). This outcome, however, was due somewhat more to the girls' means than the boys' means fitting the model. Considered separately, the boys' means fit the model but not impressively (p = .015625); the girls' means more satisfactorily fit (p = .0009765). It was noted in the boys' data that a tie occurred between the means of groups *1* and *2*; this was ignored in the preceding probability computations.

Some *post hoc* explanations of the missed predictions will be considered. First, it is to be noted once more that Expects was coded based on a parent's general remarks and not based on response to a direct question. Thus, possible measurement problems with the variable must be entertained (see discussion in Chapter IV). In a sense the appearance of the highest mean for boys and girls in typology category *3* must be viewed as paradoxical and wholly unexpected. It is as if, in keeping with their unsupportive and demanding character, the Lo Nurt-Hi Cont parents were expressing a demand rather than an expectation. This mean, further, is not easily dismissed as a result of sampling error, since it is reliably higher than the mean for group *2*! The other missed predictions display a common pattern, all falling into group *1* for boys and girls. The data are in reality linked operationally and logically as well, both having come from the school-family interview, with the AcadSat question immediately following the ChGrade question. Parents who reported that their children had higher grades also expressed greater academic satisfaction, making these findings correlated. Why they appear under group *1* is not as easy to say. The finding raises the interesting possibility that higher control may in fact relate to grades differently at the secondary level (i.e., referring here to the contrast between GPA and ChGrade, as earlier discussed). The present data do not lend themselves to further study of this suggestion, so it must await further research. In any event, the ChGrade finding surely is not a sampling artifact, since by planned comparison the mean for group 1 is reliably higher than the means for groups 3 and 4 for boys and group 3 for girls. That the prediction was not terribly amiss is also affirmed by the fact that the second highest means for ChGrade occurred in group 2, with the mean for boys being reliably higher than for group 4.

The prediction of which group would perform least well on the foregoing measures was more difficult to rationalize. Arguments could be made both for group 4 and group 3; accordingly, only exploratory analysis was possible, as follows:

Unfavorability Analysis of Typology

| Variable | 1<br>Hi Nurt/<br>Hi Cont |  | 2<br>Hi Nurt/<br>Lo Cont |  | 3<br>Lo Nurt/<br>Hi Cont |  | 4<br>Lo Nurt/<br>Lo Cont |  |
|---|---|---|---|---|---|---|---|---|
|  | B | G | B | G | B | G | B | G |
| AcadSat |  |  |  |  | H | H |  |  |
| Expects |  |  | H |  |  | H |  |  |
| IntInvl |  |  |  |  |  | H | H |  |
| ParAtnd |  |  |  |  | H | H |  |  |
| Attend | H | H |  |  |  |  |  |  |
| Achieve |  | H |  |  |  |  | H |  |
| Ability |  |  |  |  |  |  | H | H |
| GPA |  | H |  |  |  |  | H |  |
| ChGrade |  |  |  |  |  | H | H |  |

The letter H indicates in the preceding table where unfavorable means are located. Hits and misses are not shown, since these could not be clearly anticipated. They by no means all fell into either group 3 or 4 but show a more scattered pattern. Thirteen of the 18 lower means fall into the right-hand half of the table, which contains the low nurturance groups. The probability of a low mean appearing in either group 3 or 4 is .0039 approximately. Neither group 3 nor 4 contains reliably more low means than any other. It is further apparent that over one-half of the lowest means for girls appear in group 3 and eight-ninths of the girls' lowest means occur in connection with high control (groups 3 and 1). The association between control and unfavorable indicators is statistically reliable (around .0078). Over one-half of the lowest means for boys occur in group 4; seven-ninths of boys' lowest means are associated with low nurturance (p = .0313 approximately).

The preceding findings support the conclusion that the typology predicts favorable outcomes and events, but that unfavorable outcomes are more strongly associated with the individual dimensions underlying the model, i.e., Nurt and Cont alone better indicate unfavorable events. Why higher Cont is less favorable for girls and lower Nurt is less favorable for boys--which they are--cannot be inferred from the present data. These findings are striking in any event and encourage further study of both the typological model and of its individual dimensions. Surely these are important to how children do in school.

The relations between the typology and other areas of child behavior were also explored in the study. Predictions were quite complex to arrive at due to known sex differences, for example, within the problem behavior complexes or factors; the differences that might be expected between positive behavior outcomes, such as ConAdpt, versus negative outcomes (e.g., Depress), versus neutral outcomes (e.g., BlntMnp)--all potentially being differentially distributed within the typology; and the different predictions that might be made for self-report measures versus behavior factors derived from the Checklist. These exploratory efforts, thus, are extremely difficult to represent in tabular form in a way that makes clear what is occurring. This is, nevertheless, attempted below.

Favorability of Typology for Child Behaviors

| Variable | 1 Hi Nurt/ Hi Cont | | 2 Hi Nurt/ Lo Cont | | 3 Lo Nurt/ Hi Cont | | 4 Lo Nurt/ Lo Cont | |
|---|---|---|---|---|---|---|---|---|
| | B | G | B | G | B | G | B | G |
| AcadOcc | | | F | | U | F | | U |
| SlfConc | | F | F | | | U | U | |
| ConAdpt | | F | F | | U | U | | |
| Aggress | | | | | U | F | F | U |
| AnxDep | | U | | F | F | | U | |
| EgoDfns | | U | F | | U | F | | |
| Depress | U | | | U | | F | F | |
| Disorg | | U | F | F | | | U | |
| ShySrs | U | | F | | | F | | U |
| Restles | | | | | U | F | F | U |
| ActDfns | U | U | | | | F | F | |
| Agitate | | U | | F-tie | U | F-tie | F | |
| Antisoc | | U | | | U | F-tie | F | F-tie |
| BlntMnp | Lo | | | Lo | Hi | | | Hi |

F = Favorable    U = Unfavorable    Hi = high mean    Lo = low mean

Without benefit of predictions regarding the distribution of means in the table above, the principal value of presenting this information is for hypothesis generation. Favorable events for girls cluster strongly in group 3; unfavorable events for girls more often in groups 1 and 4. Favorable events for boys are equally divided between groups 2 and 4; unfavorable events for boys occur most often in group 3. The boy-girl differences are most prominent relative to group 3. From almost any perspective taken, the child behavior data reveal patterns of relationship to the model that are quite different from those encountered in the school data set. In the behavior data, unfavorable events for girls are associated with both high and low controls (groups 1 and 4), while they were associated mainly with high control in the school data. Boys' unfavorable outcomes were associated with low nurturance in the school data, and they are in the behavioral data as well; however, the central tendency shifts from group 4 in the school data to group 3 in the other data. Favorable events for both boys and girls were found mainly in group 2 for the school data; boys' favorable means are equally distributed between groups 2 and 4, and girls' favorable events now cluster in group 3. So, as regards both favorable and unfavorable events, and as regards patterns of sex differences and similarities, the means for the behavior data seem to be drawn from a different universe than the school-focused data, when examined within the framework of the parental behavior typology.

No predictions were made for the foregoing behavioral data, and no statistical tests have appeared to be particularly relevant. Instead, data patterns have been summarized across the diverse variables in the table for both F and U outcomes in order to support future hypothesis formulation. The tabled information will permit researchers to generate their own re-combinations. BlntMnp is so different from the other variables as to render the distinctions F and U not useful, so high and low means are presented without categorization.

Psychosocial factors. Psychosocial maturity factors as represented by the T.E.D. test have shown few meaningful relations to other data in the study. This was again evident in Chapter V. Similarly, if the T.E.D. is examined using the two-way analysis of variance with covariance design reported earlier in Chapter VI, the model fails to account for the T.E.D. task scores. The question to be considered here is whether the typology will assist in clarifying the task scores.

Favorability Relative to T.E.D.

| Variable | 1 Hi Nurt/ Hi Cont | | 2 Hi Nurt/ Lo Cont | | 3 Lo Nurt/ Hi Cont | | 4 Lo Nurt/ Lo Cont | |
|---|---|---|---|---|---|---|---|---|
| | B | G | B | G | B | G | B | G |
| Task 1 | | | | F | U | | F | U |
| Task 2 | | | | | U | F | F | U |
| Task 3 | F | F | U | U | | | | |
| Task 4 | | | | U | U | | F | F |
| Task 5 | U | F-tie | F | F-tie | | U | | F-tie |
| Task 6 | F | U | | F | U | | | |
| Task 7 | F | U | | F | | | U | |
| Task 8 | | F-tie | F | F-tie | U | U | | |
| Task 9 | U | | F | F | | U | | |
| Task 10 | | U | F | F | | | U | |
| Task 11 | | U | U | | | F | F | |

| | | | | |
|---|---|---|---|---|
| Task 12 | U | U | F | F |
| Task 13 | F | F | U | U |

F = Favorable U = Unfavorable

Interpreting the T.E.D. results is approached with caution because, first, no advance hypotheses are offered regarding the expected results. Second, apparent measurement problems are associated with the fact that the task scores are actually for very small samples of behavior that may be thought of essentially as expanded forms of single items. Through refinement, they have become unusually internally consistent item scores and, as such, are reliable, but they remain subject to the validity limits that are inherent in narrowly sampled characteristics--being valued for hypothesis generation but skimpy for making established conclusions. Their measurement limits are evident when the magnitude of the differences among the means are reviewed; many near ties occur, and by planned comparisons few reliable differences occur among the means for the individual rows of the preceding table. This contrasts with both the school data and the child behavior data previously presented in this parent typology section, for which substantially more distance existed among the sets of means. Nevertheless, it has been possible to identify for most of the 13 tasks both the most favorable and unfavorable means; yet, the small distances among means suggest that the minor sampling variations that are inevitably present with cell sample sizes of around 20 cases each on average could mean that the true means would assert themselves elsewhere with larger sample size. Again it will be recalled that the means have all been adjusted for the SES covariate.

In order to guard against overinterpreting means in the T.E.D.-by-typology table, particular attention is given to finding mean tendencies for which girls' and boys' data are similarly patterned. A second examination strategy has been to look for column patterns. Third, some comparisons can be made between the typology's relation to the T.E.D. and to the other data sets that have been examined.

Favorable means tend to appear most often in pairs in group _2_ (five of eight such pairs), with two more appearing in group _1_, none in group _3_, and one in group _4_. Thus, the girls' and boys' means agree for seven of the eight actual favorable pairs, within high nurturance groups (_1_ and _2_). This pattern of favorability clustering in the left of the table, with the greater concentration in column 2, strongly resembles the overall pattern for the school data (see page 152). That is, higher nurturance, especially in combination with lower dominance/control, is associated with more favorable results. The T.E.D. results within this pattern specifically suggest greater psychosocial maturity in these areas: aggression management, resistance to temptation (conscience), orientation toward care of the young, adjustment to externally imposed limits/controls, acceptance of parental expression of mutual affection, self-concept, and heterosexual socialization. The only other task for which the more favorable means for the two sexes occurred together was attitude toward learning.

Unfavorable pairs of means appear only four times: one in group _1_, two in group _2_, and one in group _3_. It is interesting that all three pairs appearing in groups _1_ and _2_ are answered by corresponding pairs of unfavorable means in the other high nurturance groups. Thus, Hi Nurt-Hi

Cont is associated with favorable mastery of aggression and heterosexual interest, while Hi Nurt-Lo Cont is linked to low mastery on these two tasks. Increased control, in the presence of high nurturance, thus appears to be the critical element. The reverse is true for Task 12: Hi Nurt-Lo Cont results in more positive self-concept while Hi Nurt-Hi Cont results in diminished self-concept. Both similarities and differences between this finding for T.E.D. self-concept versus the self-report measure of the same name (see page 156) are worthy of mention. The appearance of contrasting favorable and unfavorable means in groups 1 and 2 has precedents in the school data (compare tables on pages 152 and 154). Thus, high nurturance can be the matrix for both highly valued and unfavorable outcomes, depending upon the degree of control present. Regarding the final pair of unfavorable means in this series, low maturity of orientation toward care of the young is found in children who have experienced Lo Nurt-Hi Cont (group 3).

Another similarity between the T.E.D. and school data is apparent: favorable results cluster more tightly, whereas unfavorable results are more dispersed within the typology. A difference in dispersion is that, for the school data, unfavorable outcomes cluster in the low nurturance groups (i.e., 3 and 4; see table on page 154), while they appear slightly more frequently in the high nurturance part of the table (14 to 12--see page 158). Thus, psychosocial tasks are more saliently linked with the interaction between high nurturance and varying levels of control/dominance.

The most salient condition for girls is Hi Nurt-Lo Cont, which accounts for eight (around 61.5%) of favorable means. Girls' unfavorable means are much more distributed across the typology (i.e., 5, 3, 3, 2 from left to right). Favorable means for boys are distributed across the first two and the fourth categories, with none in the third (4, 5, 0, 4). Thus, nine-thirteenths of their favorable means fall in the high nurturance side of the typology (about 69%) and ten-thirteenths (about 77%) of girls' means are in that region. Boys' unfavorable means are widely dispersed across the typology (3, 3, 5, 2). For boys, the low control cells (2, 4) are favorable by a ratio of nine to four; high control (1, 3) are unfavorable (five versus eight). For girls, the low control cells are favorable by a ratio of nine to four, and high control are unfavorable (five versus eight), making the control-related distributions for boys and girls identical. If the sexes are combined, this results in a low control favorability ratio of 18:8 and high control unfavorability of 10:16.

As was noted earlier, the T.E.D.'s item sampling base is narrow. This has hampered efforts in this study to identify effective predictors of the task scores. Viewing the task scores through the typology did not negate the measurement difficulties inherent in the T.E.D., but did reveal some ordered relations that appear between the typology and the scores. This information is presented here, not in an inferential or conclusion- oriented manner, but to provide a repository of information for hypo- thesis generation and future study.

# VII. SCHOOL PROMOTION AND RETENTION

Promotion from one grade level to another has important social implications that have in recent years become a focus of attention for the National Governors' Association, and readiness for school entry has been identified as an essential component of that effort (Riley, 1986). The research literature on promotion versus retention has been subjected to a thorough secondary analysis that supports the conclusion that retention does not equalize subsequent school outcomes; promoted children continue to outperform retained children by about .37 standard deviation across varied measures (Holmes & Matthews, 1984). The likely negative results of retention, moreover, "...consistently [exceed] positive outcomes" (Holmes & Matthews, 1984, p. 232).

HOPE was developed as an alternative to kindergartens for places where these were not available. The HOPE curriculum taught, among other things, readiness skills (Gotts, 1983). The present chapter examines the effect of HOPE on school promotion and retention by means of a sequential look at early school performance, coupled with a cumulative study of children who were held back or retained a grade in school. Later correlates of school promotion/retention are considered.

Before looking at the HOPE findings, it is necessary to look into the context of their occurrence. In the period from 1969 through the mid-1970's, during which these children began their school careers, few children in their school systems were placed in special education. Instead, it was common practice to hold back from promotion children who were doing poorly in school in the hope that an additional year in grade would allow them to catch up. Most of these retentions occurred very early in the primary grades and seldom past grade three. Only one child in the HOPE sample was retained more than one year; so, to preclude the data being skewed by a single case, all data were coded to reflect that a child had never been retained (0) or had been retained at some time (1). Information on the actual grade level failed was also coded but is not a part of the analysis. A search of school records for the followup sample of 342 children indicated that special education placement was rare and fell far below normal numeric expectations for a random group of this type. Retention in the HOPE school systems must, therefore, be viewed as having been an alternative to special education, as well as a procedure that attempted to bring delayed or slow learning students up to grade level via an extra year.

### Early GPA and Retention

It has been mentioned that retention occurred mainly in the early grades. Retention is, of course, most typically resorted to because a child's rate of learning accomplishment is seriously below expectations. There is, then, a necessary relation between GPA and retention. Teacher grades more often than test results influence the decision to retain. Relations between GPA and grade repeated were as follows for the elementary years:

| Grade | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| r | -.61 | -.52 | -.47 | -.45 | -.40 | -.39 |
| n | 323 | 325 | 319 | 308 | 246 | 162 |
| p | All probabilities were less than .001 for the six grades | | | | | |

GPA related more strongly to retention at grade three (-.47) than did other contemporary measures:

| Measure | Correl. | n | p |
|---|---|---|---|
| Non-Verbal Abils. (EDS) | -.12 | 297 | .028 |
| Verbal Abils. (EDS) | -.37 | 296 | .000 |
| Tot. Basic Skills (EDS) | -.37 | 293 | .000 |
| Btry. Compos. Gr. Score Basic Skills (EDS) | -.37 | 295 | .000 |

The small relation between academic difficulty in the early grades and delivery of special services has already been noted:

| Special Services | r | n | p |
|---|---|---|---|
| Referred for Psychological Service | -.23 | 304 | .000 |
| Referred for Special Education | -.26 | 304 | .000 |
| Referred for Speech Services | -.13 | 304 | .018 |
| Referred for Audiology Services | -.09 | 304 | ns |

It is interesting that all of the foregoing relations are negatively signed, but not meaningful. Actually these variables were all coded: 1 = referred; 2 = not referred. Thus, the expected relation occurs; retention is associated with a variety of referrals. These relations, however, were all quite small in view of the seriousness of the decision to retain, supporting the view that retention was based more on teacher evaluation than on the opinion of a specialty team. Further, the third grade relation between teacher grades and retention is higher than retention's relation with a variety of test scores.

## Family Characteristics and Retention

Failing a grade in school is the product of many factors. Certainly family and environmental influences are among those to be entertained. The HOPE followup study offers a rich array of measures for this purpose. These relations are reviewed below, based on the composite sample.

| Name | r | n | p |
|---|---|---|---|
| AO | -.30 | 209 | .0001 |
| HES | -.22 | 210 | .0009 |
| FavIndx | -.14 | 211 | .0387 |
| SES | .24 | 198 | .0005 |
| Erikson | -.19 | 208 | .0045 |

The following family/demographic variables were all nonsignificant: Nurt, Cont, Support, Urbaniz, FamComp, FamSize, BirthOr, RejDisc, Indulge, Reject, Internl, IntDep, and the school-family interview variables. The largest of these relationships, AO, accounts for only nine percent of the variance in Repeat, leaving much variance to be accounted for.

## Preschool Correlates

Another tempting place to look for explanations of Repeat would be the considerable amount of preschool data available in the study. The standardized preschool tests do somewhat better than the family measures, with all being significant beyond .0001 in the following group: PPVT (-.32), FrostPQ (-.30), and IPTA-IQ (-.36). Other than these three measures, the other preschool data are partially confounded with CA and cannot be used for this purpose; however, it may be noted that none of them exceeds the ITPA-IQ's -.36.

## Other Child Measures

Another promising place to look for explanations of Repeat is in the wealth of other child measures available. Other than for the academic measures as such, the largest relationship found is for Cope (-.36/.0001). Out of the many other coefficients compared, only a small number of other nonschool findings are reliable: Depress (.26/.0001), ConAdpt (-27/ .0001), AnxDep (.15/.0045), Disorg (.27/.0001), ShySrs (.12/.0327), Antisoc (.16/.0026), and Health (-.14/.0363).

The school measures naturally are related to the status measure, Repeat, with GPA leading this group in importance. Its correlation with Repeat exceeds that for any individual elementary year (-.56/.0001) except first grade (see page 164). It is significant that the secondary level grade point rating by parents, ChGrade, is not reliably related to Repeat. This would be congruent with the view that secondary level and elementary level achievement are determined by somewhat different constellations of influence. By way of contrast with the substantial GPA relationship, the standardized measure, Achieve, reveals a significantly smaller relationship (-.39/.0001) even though it also is a highly reliable one. Ability relates at almost the same magnitude (-.37/.0001), again based on standardized tests. Attend relates to Repeat (-.26/.0001), which is one of the larger relations for Attend in the study. The ongoing importance of Repeat is indicated by its relationship to HSGrad (-.34/.0001), such that children who repeated a grade were more likely later to become dropouts.

HOPE and Promotion/Repeat

The Consortium for Longitudinal Studies, based at Cornell University and headed by Irving Lazar and Richard Darlington, performed important secondary analyses of the findings of a sample of the better designed early intervention studies that were conducted in the 1960's and 1970's (Consortium for Longitudinal Studies, 1979). Two findings that appeared repeatedly in those studies were that early education reduced the number of children assigned to special education and reduced the number of children who were retained in grade. Children in the reference samples were from low income background (i.e., lower SES).

In the HOPE sample, as previously noted, retention in grade served its usual function and, in addition, sometimes substituted for special education placement. The indicator, Repeat, thus will be used primarily to make comparable inferences about retention and will further be suggestive regarding special education. Information on promotion/retention was available for 336 children in the total sample; these cases are the subject of the present analysis. The objective of the present analysis is to establish the influence of HOPE, i.e., Treatmt on Repeat.

A total of 46 children in the sample repeated one or more primary grades; information on later school failure is not known. Of the 46, 24 were represented in the full followup study; partial information was available, however, on nearly all the children relative to basic school variables.

Children who repeated a grade included 32 boys and 14 girls. None comes from the top one-third of the distribution of the SES--that is, among those whose SES was known; about 17% were above the median for social class. This means that about 83% of those who failed a grade were of lower social class, defined as those falling below the sample's median. About 67% of those retained were in the lowest one-third of the social class distribution. Of the 320 children for whom the School Behavior Checklist was available, 288 could be classified as either coping or noncoping in style (90% classifiable). Among children who repeated a grade, the noncoping style was the predominant one, accounting for fully 80% of these children, whereas only 37% of the total sample were classified as having a noncoping style. The few (eight) children whose social class placed them out of the bottom one-third of the SES distribution were found to include six who could be classified on Cope; 83% of these six were noncoping, showing them to be not unlike the remaining children who were retained in grade in this regard. Repeat was, thus, strongly associated with lower social class and a noncoping style, as determined from the School Behavior Checklist. Forty of the 46 retained children (about 87%) received composite Ability scores below the national mean (i.e., having minus standard scores). The standard deviation for Ability as a composite score was .86; about 42% had Ability scores more than one standard deviation below the mean; about 69% were .05 below the mean of Ability.

The HOPE sample was not drawn from a low income population as such; instead, they were a random sample of those living in a four-county area whose children reached ages 3-5 years during the years of the study. Nevertheless, the profile of the children retained in grade appears strikingly like that of disadvantaged children elsewhere: low in tested ability, in the bottom one-third on SES (Hollingshead scores from 55 to

77), manifesting behavior problems that mark them as overwhelmingly noncoping in the school setting, and, as earlier noted, receiving low teacher grades. It seems, therefore, appropriate to compare this sample of retained children to those in the Consortium study (1979) and to inquire about how large the impact of HOPE was as a preventive measure.

Information was available to code Repeat for 336 children. The overall rate of retention for experimental and control children combined was 46 (around 13.7%). But retention in grade was not equally distributed between experimental and control groups. Of 234 experimental children, 23 failed a grade and were retained (around 9.8%); 23 of 102 control children were retained (about 22.5%). This means that the rate of nonpromotion in the control group was over double (2.29 times as great) the rate in the HOPE children whose parents received home visitation. This suggests the following contingency table:

| | Exper | Cont | Totals |
|---|---|---|---|
| Promoted | 211 | 79 | 290 |
| Retained | 23 | 23 | 46 |
| Totals | 234 | 102 | 336 |

The chi-square value associated with the preceding contingency distribution is 9.7268, whose tabled probability is less than .01. HOPE resulted in significantly fewer children having to repeat a grade in school, thereby averting both the public and private cost of this event and its consequences and ramifications for the rest of the child's years, on through the entire school career, and probably subsequently in the later course of life as well.

It needs to be asked whether the outcomes here attributed to HOPE might as well be accounted for by other factors, such as social class. It is true that in the followup sample of a little over 200 families, it was more difficult to obtain the participation of control cases; extra efforts were necessary to find and include these cases. Consequently, it is not surprising to find that there is about one-half standard deviation difference between the experimental and control groups on SES: Exper m = 47.29; Cont m = 54.04; s = 13.35, with the experimental group being of higher SES. Because of this difference, SES was used as a covariate in earlier analyses reported in Chapters V and VI. On the other hand, in the full sample of 342 cases for whom school data were available (and from which the 336 Repeat cases came), there is every reason to believe that the effects of the original randomized assignment of cases to conditions assured that SES was not different between the two groups. Unfortunately, sufficient SES data from the early years of the study were not preserved, so this assertion cannot be directly tested.

Although the SES for the full sample cannot be directly examined in order to demonstrate the equivalence of experimental and control groups in the total sample of 342, supportive evidence exists for this contention, which will now be reviewed. Scores were available from the cumulative files reported in local stanines, as well as in terms of national norms. A stanine is a standard score having a mean of five and a standard deviation of two. If the overall control group at the time of the accumulation of the school data still remained a random sample (i.e., not differently affected by attrition through outmigration than the remainder of the community), then the control sample would be expected on average to have a stanine of 5.00 on the local norms on the standardized tests. This evidence exists for the Educational Development Series at the third grade level with sufficient sample size to provide stable mean estimates. The Total Abilities score of the control group for grade three has a mean stanine of 5.18; its Total for Basic Skills achievement was 5.09; and its Battery Composite was 5.20. All of these scores indicate that the full sample of control children was not vastly different from local norms on ability and achievement by the end of grade three. Accordingly, these children may be viewed as continuing to be representative of their untreated school peers, i.e., they are a satisfactory control sample. Thus, when the full control group is under consideration, as is the case with the contingency analysis of Repeat, no adjustment needs to be made for SES; the adjustment is, however, required when the heavily studied sample of 200-212 is used to relate parent and child data.

A second line of evidence was analyzed using preschool measures available on children who were included in the full followup sample of 342 and those from the larger original sample of over 700 who were not located at followup either in the 1975 or 1978 efforts. If direct comparisons are made between the control subjects from the in-sample and the outside-of-sample groups of preschool data that survived, finding that these two groups are not statistically different would further suggest clearly that the control subjects in the sample of 342 remain viable as representatives of the original randomly assigned control cases. Such comparisons were made of preschool data from the 1969-1970 post-testing (pretest data were never successfully identified). The PPVT-IQ data yield a probability of .98 that these groups are the same, both receiving mean scores of slightly over IQ 98. Vineland Social Maturity Scale scores from that occasion were not different (F = 1.30/p = .25).

More data of the above type were available from both the pre- and posttests for 1970-1971. On the pretest, the PPVT-IQ's were not different (F = .93/p = .33), the FrostPQ (F = .02/p = .87) was not different, and they did not differ for ITPA-IQ (F = .60/p = .44). Posttest results for 1970-1971 show no difference in IPTA-IQ (F = 1.89/p = .17), in FrostPQ (F = 1.16/p = .28), or in ITPA-IQ (F = 2.18/p = .14). If anything, the raw underlying means of the in-sample control group were slightly higher, but as noted above, these differences were not statistically reliable.

Finally, the preschool data provided information for these two segments of the control sample on the SES of the head of household, which is based on the same index (Hollingshead) used in the followup study. The HOPE evaluators had, however, in 1970-1971 compressed the Hollingshead into a five-point ordinal scale that bears the following relationship to the full scale: _1_ = 11-17; _2_ = 18-27; _3_ = 28-43; _4_ = 44-60, and _5_ = 61-77. There was no means of recording the SES categories to make them equivalent to the full SES scale, and early SES was not available for many of the around 200 family units in the core followup study. The preschool head of household SES classification scores for the two segments of the overall control group were identical (F = .00/p = 1.00; both means 4.28).

A third line of evidence regarding the in-sample control group comes from the graduation data, which will be more extensively explained in Chapter VIII. For the present, it will be sufficient to state that a method was used to fully equate the HOPE sample with the total composition of all graduating classes throughout the years that the HOPE children were scheduled to graduate. When the samples had been fully equated, the predicted graduation/dropout rate for the control group essentially matched that expectation. It was concluded that within the full sample of 342 cases, which were substantially represented in the graduation data, the control group was not different from its untreated peer group. In this case, the peer group means not the outside-of-sample segment but the entire composite of graduating classes--the exact meaning of which will be presented in detail in the next chapter.

Based on the foregoing mutually reinforcing lines of evidence, it is concluded that the full in-sample control group (i.e., 105 randomly assigned cases) is substantially unbiased by factors of differential attrition, etc. Further, analyses of variables, for which this control group is largely present (i.e., with few cases having missing data) in the comparisons, may be carried out without concern regarding possible social class bias of the results. Both Repeat and HSGrad are variables for which the in-sample control group is largely present. On the other hand, when the smaller sample of persons who participated in the extensive HOPE followup is reviewed in this light, it is apparent that adjustment for SES is not only desirable but important.

Returning now to the line of discussion pursued earlier, the home visitor treatment was the effective ingredient in HOPE that dramatically reduced the rate of school failure, as indexed by retention in grade. This finding should be an exciting result not only to educators but also to all citizens, since the effects of retention are pervasively negative, exacting intolerable costs of the individual, the family, and ultimately society (Holmes & Matthews, 1984). This argument contains another untested assertion, namely, that it is the home visitor component that mattered primarily in the longitudinal effects of HOPE. This assertion is next examined relative to the variable Repeat.

In order to examine the assertion that home visitation is the effective element in HOPE, distinguishing it from the TV component that was shared by the control group, it is necessary to recall that a third treatment component was present: a weekly group experience in a mobile classroom. One-half of the experimental group received this treatment plus home visitation while the other half of the experimental group received home visitation without a classroom experience, in addition of course to daily TV lessons for all. Gotts (1983) presented a case for combining the two experimental groups, based upon a detailed examination of implementation (formative) and outcome (summative) evaluation data from the three-year HOPE experiment. The alternate hypothesis to be entertained is that the classroom or group experience added to the longitudinal differences between experimental and control groups. This possibility can, in fact, be tested with the promotion/retention data.

The combined experimental group contains 95 cases that received the full HOPE package of TV plus home visitor plus classroom/group experience; 142 cases received home visitation plus TV. Examining the data for Retain shows that 13 children each are found in the total package group and the TV-home visitor group. Thus, the distribution does not support the notion that children in the package group were more likely to be promoted. In fact, a somewhat reverse trend of proportions is seen in the raw data, although these are not statistically reliable (chi-square of 1.1955 is ns). The classroom/group experience did not add further to preventing retention.

Some other interesting things have been mentioned regarding the contrasts between the experimental children and the control children who were retained. Relatively more girls were held back in the control group (9 girls/14 boys) than the experimental group (5 girls/18 boys). This is not a reliable trend (chi-square is 1.6429, p = .20), but is suggestive of the possibility that the HOPE treatment may not only have affected the level of Repeat in the experimental group; it may have also affected the relationship between Repeat and both demographic and child and family variables. To explore this possibility, separate correlations were computed between Repeat and the study's major variables within each of the two groups: experimental and control. These differences are reported below and are evaluated using the test of the significance of difference between two correlation coefficients. The result is expressed as a standard z score and is evaluated in the usual manner. This procedure for evaluating differences has been described by Edwards (1954). Evaluation is by two-tailed tests (z = 1.96).

Many correlations were quite similar between the experimental and control groups for Repeat. However, the following differences appeared to be worth formal testing: Ability (exper -.27, cont -.52), GPA (exper -.49, cont -.65), SES (exper .15, cont .41), Attend (exper -.09, cont -.36), Nurt (exper .15, cont -.14), Erikson (exper -.12, cont -.36), ChGrade (exper -.08, cont -.30), and AcadSat (exper .08, cont -.38). All of these changes are in the direction of the relationship between Repeat and the other variables becoming smaller in the experimental group than the control group. This trend is noticed in a large majority of the remaining variables, but it is smaller and not significant. The z scores associated with the preceding correlational differences are as follows: Ability (2.470), GPA (1.959), SES (1.646), Attend (2.343), Nurt (1.757), Erikson (1.537), ChGrade (1.230), and AcadSat (2.566). If directional hypotheses had been offered to the effect that the treatment would reduce the relation between Repeat and the other variables, the $\underline{z}$ level set for rejecting null hypotheses would have been 1.645, and all but two of the changes would have been judged as reliable. With the nondirectional, two-tailed tests used, relationships between Repeat and three measures, Ability, Attend, and AcadSat, were all found to be reliably smaller in the experimental group.

Based on the foregoing evidence, it is concluded that while the rate of children being retained was lowered, so also the meaning of Repeat was altered in the sense of having differing relationships to other major school-related variables. That is further to say, the phenomenon of school failure was transformed; the forces that resulted in school failure in one group differed in magnitude and, hence, pattern from the forces that eventuated in failure in the other group. Changes of this sort are often referred to as both qualitative and quantitative. It is especially noteworthy that tested ability became less important in the HOPE experimental children. Moreover, the appearance of a difference for AcadSat suggests that the altered relations persisted up into the secondary school careers of these children.

Further, it is worth mention that at the time of HSGrad the status of children who had repeated a grade was known for 15 experimental and 13 control cases. Eight of these experimental children graduated and seven dropped out; five control children graduated and eight dropped out. These findings show what a truly high risk group these early school failure children were. Retention did not neutralize or reverse their risk of failure; a majority of them (about 53.5%) eventually dropped out. In this connection, it must be further remembered that the control group is even more appropriate to use as a sample from which to estimate the size of the linkage between retention and dropping out. Although the number of cases is quite small, it is suggestive that perhaps over 60% of retained children are at risk of dropping out in later years.

A small difference of the percentage of dropouts is noted between the two groups: experimental 46.7% compared to control 61.5%. This disproportion of dropouts is not statistically reliable by chi-square analysis; it is, nevertheless, suggestive of a possible contribution of HOPE to the prevention of dropping out in this high risk group when families received home visitation. Certainly these measured variables merit inclusion in future studies of dropout prevention. That is, the fact of previously having failed a grade should be used to identify a very high risk category of children for dropout. Analyses should then be conducted in order to determine whether various interventions result in a decline of dropping out among formerly retained children when compared to similar but differently treated or untreated children who were retained. This brief look into the relation between Retain and HSGrad leads naturally to Chapter VIII, with its focus on graduating and dropping out.

## VIII. GRADUATION, DROPPING OUT, AND CONSEQUENCES

Completion of secondary school via graduation and the awarding of a diploma is the normative route toward growing up in America in both the sense of a normative expectation and the sense of a statistical norm. Graduation is further to be viewed as a basic indicator of school performance, and it is one by which the nation's schools are being increasingly judged as to their effectiveness (Rumberger, 1987). This is not surprising in view of the many documentable consequences of dropping out: (1) lost national income as a factor of GNP, (2) lost taxes that would have been paid on the lost income, (3) increased needs/demands for a wide range of social services, a cost factor, (4) increased crime plus increased cost of crime, (5) reduced participation in the political process, (6) reduced social mobility across generations, and (7) poorer levels of health in the population (Levin, 1972). Some recent attempts have been made to update aspects of Levin's (1972) work (e.g., Catterall, 1985; McDill, Natriello, & Pallas, 1987), but none of these efforts has been as comprehensive as the earlier work on the consequences of dropping out.

The literature on school dropouts identifies a common core of findings associated with leaving school. The Educational Testing Service (ETS) has been using the database of the National Center for Educational Statistics (NCES) to follow a national cohort of high school sophomores in order to determine more about the factors that influence dropping out (Ekstrom, Goertz, Pollack, & Rock, 1987). In summarizing family background factors, the ETS group notes that dropouts, more than "stayers":

> (1) had fewer study aids present in their homes, (2) had less opportunity for nonschool related learning, (3) were less likely to have both natural parents living at home, (4) had mothers with lower levels of formal education, (5) had mothers with lower educational expectations for their offspring, (6) had mothers who were more likely to be working, and (7) had parents who were less likely to be interested in or to monitor both in-school and out-of-school activities (p. 54).

In the HOPE followup, the preceding indicators were represented by such highly developed variables as Support, AO, IntInvl, FamComp, Expects, and HES, as well as others not typically included in studies of dropouts. HOPE is known to have impacted significantly on some of these variables (e.g., HES, AO, Support, IntInvl, and Expects), so there is reason to believe it may have impacted on those family background areas previously identified as differentially linked to graduation and dropping out and, therefore, may have helped to prevent dropout. One purpose of this chapter is to document findings related to this issue.

## Predicted Dropout Rate

A special problem for the analysis of the HOPE data relative to dropout rate was that children typically were scheduled to complete their school careers during five graduation cycles: 1981, 1982, 1983, 1984, 1985. Moreover, they were enrolled in four different county school systems. In addition, a few stragglers were expected to graduate beyond the base period, so the 1986 graduating class had to be considered as well. Dropout rates for the six years by four counties were obtained from Terry Wilson in the West Virginia state education agency to be used to develop a table of expected outcomes. These appear below:

County by Year Dropout Rates

| Year | Mercer | Fayette | Summers | Raleigh |
|---|---|---|---|---|
| 1980-81 | 24.39% | 26.07% | 38.22% | 26.72% |
| 1981-82 | 21.67% | 24.15% | 31.82% | 25.57% |
| 1982-83 | 19.25% | 27.39% | 31.67% | 26.92% |
| 1983-84 | 22.53% | 28.16% | 30.85% | 29.99% |
| 1984-85 | 22.42% | 28.40% | 24.62% | 30.79% |
| 1985-86 | 20.61% | 22.55% | 17.32% | 27.05% |

Next, a matrix was prepared by county and by year of all expected graduations showing where all of the experimental and control group cases appeared. The dropout information above was converted to expected graduation proportions by subtracting each of the above percentages from 100% and then dividing by 100. For example, for Mercer County, 1980-81, 100% minus 24.39% is 75.61%, which divided by 100 yields the proportion, to four places: .7561. This proportion may be read as: ".7561 of the Mercer 1980-81 participants can be expected to graduate" (and .2439 to drop out). If the proportions are applied to all the cells of the subjects matrix described above as multipliers, the result is a matrix of expected graduates by county by year by experimental/control. Then by summing these expected numbers of graduates across counties and years for experimental and control groups separately, the total expected graduates is obtained for each group. These figures, however, can be used to predict the total numbers graduating and dropping out of the total of 342 cases and are not directly applicable to the sample for which graduation/dropout information was actually available. That is, the total predicted graduate and dropout figures are those that would hypothetically be obtained if HSGrad were available for all 342 cases.

In order to adjust for the uncertain HSGrad portion of the sample, a second matrix was constructed in the manner just described, differing only in the respect that the numbers appearing in the subjects matrix for county by year were the actual numbers of subjects whose HSGrad was unknown/uncertain. It will be apparent that the results of the matrix procedure for all subjects minus the results of the matrix procedure for unknown or uncertain subjects is a set of differences equal to frequencies for the known cases, which is what the remainder matrix represents--i.e., total - unknown = known. As a point of information, the same result could be obtained by an alternate procedure: if one were to develop separate matrices each for graduates and for dropouts by following the same procedures just outlined, these would, when summed, be equal to the matrix results earlier obtained by subtracting the result of one matrix from that for the other. The results are fully comparable.

Moving now to the actual calculations, 133.6317 (rounded to 134) are the predicted graduates for the experimental group, and 51.3683 (rounded to 51) are the expected dropouts, out of the total for known graduates of 185. The comparable predicted number for controls was 56.8620 (n = 57) graduates and, for dropouts, 21.1380 (n = 21), for a control group total size of 78 cases. Total known graduates plus dropouts are 263 cases, or the same as the number of predicted cases.

It is instructive to look further at the result that would have been obtained by following a different method of estimating graduates and dropouts. This method would use the total for the 342 cases matrix and simply proportionally adjust it to fit the actual available sums for experimental and control cases known (obtained) but without regard to whether the observed 185 and 78 graduated or dropped out. This is less precise than adjusting for the cases that were actually unknown as to HSGrad, but the results are quite similar: experimental expected to graduate 133.3396, to drop out 51.6604; controls to graduate 58.9165, to drop out 19.0835. This method of calculation would have resulted in a shift of one expected experimental case from expected graduates to expected dropouts and two expected control dropouts into the expected graduates group. This method of adjustment is presented for information only, in order to indicate that the actual known followup sample differs little from the total sample in its underlying distribution of children by county and school year relative to the total percentages expected to graduate and to drop out.

As noted above, the second method of calculation led to only approximate predictions, whereas the former method results in a more precise adjustment by, in effect, removing the unknown cases from the matrix based on their actual county by year distributions. This is the method that is used in all subsequent calculations. Before proceeding to further calculations, however, it is necessary again to emphasize that the predictions are predictions for untreated groups. That is, they represent what would be expected if one only knew that the children belonged to the particular graduating cohorts that they individually and respectively were parts of by virtue of their class year and county of attendance. The predictions offered to this point do not differentiate between experimental and control as having different expected outcomes, but predict their outcomes based only on county and year.

The question that now needs to be raised is how well the two samples are matched relative to predicted outcomes, as further clarified immediately above. The 133.6317 expected graduates in the experimental group amount to a graduation rate of 72.23% and a dropout rate of 27.77% based on the predicted 51.3683. For the control group, the expected 56.8620 graduates yield a graduation rate of 72.90% and a predicted dropout rate of 27.10% based on the prediction of 21.1380 cases. From these figures it can be seen that, had they not been through different early childhood experiences and an ongoing differing treatment via their parents as the result of what the experimental parents learned from HOPE, the two groups would have been expected to graduate and drop out at almost identical rates. It must be noted well that the statement being made here has fundamentally to do with the equivalence of the experimental and control groups with respect to the effects of schooling. That is, using graduation rates of the various cohorts as markers of school effects is asserted here to result in comparability of school effects on the average in the experimental and control groups. Many studies fail to examine and establish comparability of school effects; this study does both before proceeding to inferences about effects of the treatment on the experimental sample. In Chapter VII, the comparability of social class between the two groups was addressed; this part of the total sample appears to be essentially unbiased by differential attrition, remaining comparable to the group composition created by random assignment. This assertion is tested below by raising the question of how well the control group represents the untreated school population from which it is drawn in terms of rates of graduation and dropout.

The predictions made for the control group were that 57 would graduate and 21 would drop out. The observed frequencies for these two outcomes are, respectively, 58 and 20. This successful prediction simply indicates or confirms that the control group accurately reflects the condition of the total population of cohorts (n = 20,647) who either graduated or dropped out of the four county school systems over the six-year interval. This should not be particularly surprising, since a sample size of 78 that is stratified by county and year via matching and was randomly assigned in the beginning should fairly well represent the population from which it is drawn. The conclusion to be drawn is that this sample is a suitable control group against which to gauge the effects of the HOPE treatment, as these may appear in the experimental group.

## HOPE Effects on Graduation

Findings presented in the preceding section established that the control group cases (n = 78) included in the following analysis adequately represent the original randomly assigned sample; that their social class composition is not biasing; and that the prediction procedure applied to the data results in estimates rooted in comparability of school effects between the experimental and control groups. The analysis may proceed, focusing on the effect of the HOPE treatment as in the following table.

Observed Rates of Graduation/Dropout

| Grades | Exper | Cont |
|---|---|---|
| Expected | 134 | 57 |
| Rate | 72.43% | 73.08% |
| Observed | 162 | 58 |
| Rate | 87.57% | 74.36% |

| Dropouts | Exper | Cont |
|---|---|---|
| Expected | 51 | 21 |
| Rate | 27.57% | 26.92% |
| Observed | 23 | 20 |
| Rate | 12.43% | 25.64% |

As was noted in the prior section, both the expected frequencies and the observed frequencies for the control group closely match those for the full sample of 342 and those of all untreated children graduating from the four county systems over the six-year period. The outcome for the experimental children has been quite different and better. The dropout rate for the experimental group was reduced by over one-half (51.52%). Focusing attention only on the observed frequencies from the preceding table and subjecting them to a chi-square contingency analysis results in a computed value of 6.9990. With one degree of freedom, this value for chi-square has a probability that falls beyond .01. Thus, the prevention of dropouts is a highly reliable phenomenon.

In the HOPE treated sample, 28 fewer children than expected dropped out. Relative to the expected 51 dropouts, a relative dropout reduction rate of 54.90% is indicated. It will be useful to project this rate of dropout reduction to the entire original experimental group from HOPE. Of the 703 total original HOPE sample, 504 were in the experimental and 199 in the control condition. Considering only the experimental cases, had the prevailing rate of school dropout for the untreated school population held (i.e., using the 26.92% expected for the control group), 136 of the 504 would be expected to drop out. Using now the observed rate for the experimental group of 12.43%, only 63 dropouts would be predicted, for a new reduction of dropouts in the total treated portion of the HOPE study of 73 (i.e., 136 less 63). Based on these calculations, therefore, there is substantial reason to believe that approximately 73 children graduated who would otherwise have dropped out.

Reference was made at the beginning of this chapter to the consequences of dropping out of school. Conversely, the prevention of dropout also has consequences. Surely these are far ranging and difficult to quantify satisfactorily. It is, nevertheless, possible to base one estimate on the work of McDill et al. (1987), which suggests an average lifetime earnings difference between dropouts and high school graduates of $107,500 per person. Certainly this is a conservative cost estimate, having removed from it the effect of SES on income, and looking, as it does, only at the factor of lost income without regard to the broader costs (see page 179) that are referred to in the literature (McDill et al., 1987; Rumberger, 1987; and of course Levin, 1972). If this figure for lost earnings alone is applied to the 73 dropouts that are estimated to have been prevented by HOPE, the monetary consequence for them in gain of expected lifetime earnings is $7,847,500. Hence, the monetary consequences of HOPE will, in effect, pay for the research and development costs of HOPE up to the present. That is, in addition to knowledge generation and program development activities accomplished, it is estimated that HOPE has, via its cost benefits, comfortably paid its own way. From this it can be seen that the expectation of substantial savings to be realized via dropout prevention is, in fact, a fundamentally sound notion (Rumberger, 1987).

It is further essential to underline the fact that no change was effected in any of the local school systems in terms of curriculum, teacher behavior, classroom size or organization, administrative practice, special services, expenditures, and so on. These results were produced by a strategy of helping parents to become more effective in helping their children with learning. That is, HOPE accomplished these results by addressing directly that aspect of dropout risk that is often cited as crucial but is generally conceded to fall beyond the school's capacity to effect change: the area of family background factors. It is true that SES could not be changed, but HES was changed by HOPE (Gotts, 1987), and so also were other family and child factors that influence graduation, as will next be examined.

## Toward a Model of Prevention

In the preceding and the present chapters, HOPE's impact has been examined on the prevention of school failure/retention and school dropout. The importance of carefully measured functional family variables has been documented, as these relate to critical school output indicators.

Moreover, the influence of HOPE on selected variables has been noted. It now becomes possible to formulate a model of primary prevention of untoward school outcomes. It is more than a prevention of negative events model, since it further envisions positive family and child results.

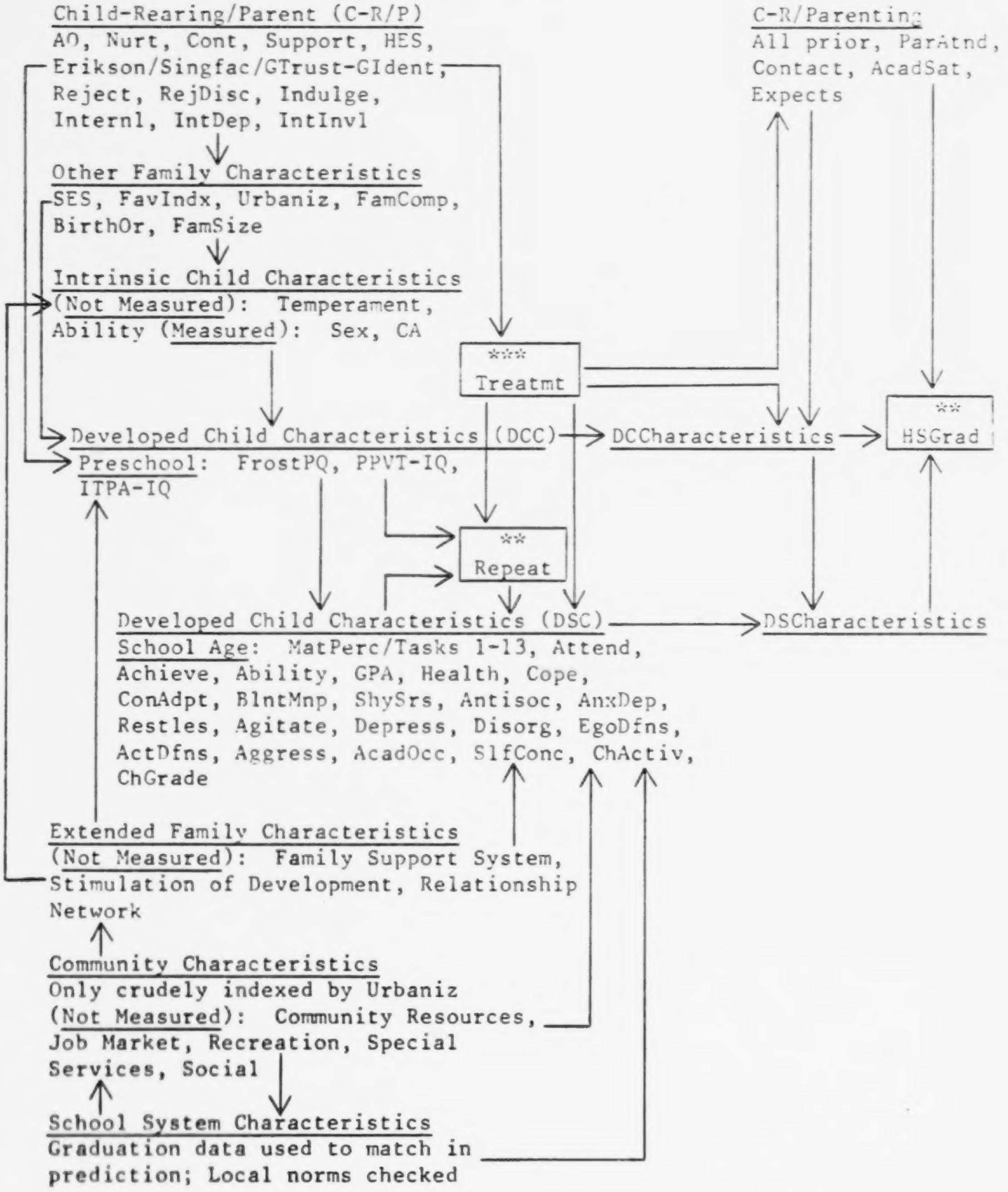
Treatment effects. Correlations were computed between Treatmt and the other variables (see pages 48-51). Statistically reliable relations are as follows: Depress (r = .12/n = 320/p = .026), Attend (-.20/326/.000), Achieve (-.14/326/.011), Ability (-.16/338/.003), GPA (-.17/328/.002), AO (-.20/211/.003), Support (-.17/213/.011), HES (-.21/212/.001), Singfac (.23/208/.001), ConAdpt (-.13/320/.016), Disorg (.12/320/.032), Restles (.11/320/.044), FrostPQ (-.20/180/.006), ITPA-IQ (-.18/178/.013), Cope (-.13/288/.018), ParAtnd (-.14/184/.046), Expects (-.15/166/.045), and IntInvl (-.22/184/.002). In addition, relations of the Treatmt to the components of Singfac are GTrust (.17/208/.012), GAuto (.29/208/.000), GInit (.21/208/.002), GIndust (.22/208/.001), and GIdent (.16/208/.016). All of these reliable relations are in a favorable direction that suggests members of the experimental group benefitted from their participation in HOPE. The effects of the treatment on the categorical outcomes Repeat and HSGrad have already been analyzed by chi-square. Together these evidences of the Treatmt effect comprise one aspect of the model.

Changed relationships. A second aspect of the model pertains to changes in the relationship between selected variables and outcome indicators that appear to result from the treatment. Changed relationships of this sort were previously presented between selected variables and Repeat (pages 176-177). Reliably reduced relations were found for Ability, Attend, and AcadSat. A similar pervasive pattern of reduced relationships is seen between HSGrad and the remaining variables. The following changes are reliable: Attend (Cont .47, Exper .12), Nurt (Cont -.17, Exper .21), ChGrade (Cont .68, Exper .27), and AcadSat (Cont .68, Exper .21). This aspect of the model demonstrates that relationships among major variables of the study are systematically altered by the treatment. Relative to the outcomes Repeat and HSGrad, predictive correlates generally lose importance in the experimental group, although as reflected above for Nurt, some reversals of relations occur.

Independent variables influencing outcomes. HSGrad is importantly influenced in the overall control group by selected independent variables. These indicate the preexisting relations that are important in the untreated population at large. The following are reliable relationships: AO (.51), AcadSat (.68), and Expects (.50). This is an especially interesting set of findings, since all relate to one another as measures of a common substrate. A series of the child variables, which may act as influences on HSGrad, relate to it in the control group as follows: Depress (-.30), Attend (.47), Achieve (.31), Ability (.36), GPA (.44), ConAdpt (.31), Disorg (-.25), Cope (.32), and ChGrade (.68)--all being reliable findings. All of these relations are in the directions that their meanings suggest, i.e., favorable indicators are positively linked to HSGrad. The relations between Repeat and these same groups of variables were shown earlier to follow this same essential pattern (Chapter VII).

Dynamics of the model. The prevention model draws upon the foregoing facts and assembles them via a process perspective that specifies the dynamics of influence. School effects are not explicitly studied in the model but are treated in the study by matching, as earlier reported in the present chapter. The tabled variations on page 181 suggest the magnitude and longitudinal course of school effects as they relate to HSGrad; some of the variation may also be due to cohort effects that interact with school effects. School and cohort effects are not disentangled nor can they be unconfounded. The interrelationships of the various components of the model are schematically represented in the figure that follows, with the variables indicated by their abbreviated designations.

The child-rearing/parenting process variables are seen as interacting with the treatment to produce modifications of the process variables by moving them in a favorable direction. Child-rearing processes also interact with other family characteristics, and they jointly interact with intrinsic child characteristics. Extended family characteristics may also interact with intrinsic child characteristics, and may interact child-rearing and structural family characteristics in doing so. The phenotypic patterns arising from intrinsic child characteristics, as shaped by external influences, result in developed child characteristics, such as those encountered at the time the HOPE preschool pretests were administered. Developed child characteristics at the preschool level are also subject to influence from both family and extended family features. The treatment was introduced late in the preschool years. It acted upon child-rearing characteristics, on developed child preschool and school characteristics, and to some extent upon the tendency to repeat an early grade. The preschool skills, some of which are things apart from school-age skills, are seen as ongoing to some extent, continuing to be


Child-Rearing/Parent (C-R/P)
AO, Nurt, Cont, Support, HES,
Erikson/Singfac/GTrust-GIdent,
Reject, RejDisc, Indulge,
Internl, IntDep, IntInvl
Other Family Characteristics
SES, FavIndx, Urbaniz, FamComp,
BirthOr, FamSize
Intrinsic Child Characteristics
(Not Measured): Temperament,
Ability (Measured): Sex, CA
***
Treatmt
C-R/Parenting
All prior, ParAtnd,
Contact, AcadSat,
Expects
Developed Child Characteristics (DCC)
Preschool: FrostPQ, PPVT-IQ,
ITPA-IQ
DCCharacteristics
**
HSGrad
**
Repeat
Developed Child Characteristics (DSC)
School Age: MatPerc/Tasks 1-13, Attend,
Achieve, Ability, GPA, Health, Cope,
ConAdpt, BlntMnp, ShySrs, Antisoc, AnxDep,
Restles, Agitate, Depress, Disorg, EgoDfns,
ActDfns, Aggress, AcadOcc, SlfConc, ChActiv,
ChGrade
DSCharacteristics
Extended Family Characteristics
(Not Measured): Family Support System,
Stimulation of Development, Relationship
Network
Community Characteristics
Only crudely indexed by Urbaniz
(Not Measured): Community Resources,
Job Market, Recreation, Special
Services, Social
School System Characteristics
Graduation data used to match in
prediction; Local norms checked

Model of Converging Influences on High School Graduation influenced by parenting characteristics and continuing in some sense actively to contribute to school-age skills or to complement them. School-age characteristics are subject to multiple influences from the past (family, preschool, treatment) and the present, including child-rearing, extended family, community, and school. The fact of having repeated a grade may operate almost as a force of its own on school-age development. Finally, school-age and preschool skill complexes converge with child-rearing characteristics to affect HSGrad.

The model just suggested is hypothetical, but many parts of it conform to the findings of the study. It cannot be treated formally as a causal model, because the HOPE experiment and its followup have had a history of discontinuities of conception, planning, execution, and personnel. The result is that high quality data are available regarding many of the issues suggested by the model, but the discontinuities of time perspective obviate the coordinated test of the entire model, as is performed in causal modeling. For example, child-rearing/parenting processes are shown as being operative from the inception. However, the functional measures of these processes were not available until the 1978 data gathering commenced in the main followup. There is, thus, no true pre/post aspect to these measures; they are creations of a point in time. Only by disentangling experimental and control group differences has it been possible to adduce evidence regarding the model. This, unfortunately, is not adaptable to aggregated inferential processes beyond those already reported. Nevertheless, in the planning of the followup and the school-family interviews, it was possible to retrofit--often in mutually corrective ways. The salvaging and reconstruction of the preschool data was an important contributor to retrofitting, making it possible to weigh the adequacy of the control group in some helpful ways. Without the original random assignment to experimental and control groups, little causal inference would have been possible. Admittedly, the reporting of the study follows a recursive, sometimes circular process of tracking answers, since a more direct, linear approach was often precluded by the nature of the available data.

It has been seen in this chapter that the HOPE experimental children experienced a dropout rate less than one-half the size of that of the control group. It is estimated that 73 dropouts were prevented as a direct result of these families and children participating in HOPE. This conclusion is solidly based on a satisfactory control group with which comparisons were made, coupled with knowledge of the true rates of graduation and dropout in the four involved school systems over the graduate years 1981-1986. Cost benefits attributable to the added 73 graduates approach, conservatively speaking, $8 million. This monetary windfall is a bonus added to the knowledge generated by the study and the widely used and influential HOPE products. (See Gotts, 1983, and Gotts & Purnell, 1986, regarding the other HOPE products.) Finally, the chapter presented a causal model of the aggregate of influences that together converge upon the significant rite of passage, high school graduation. Both strong and limiting aspects of the data are considered in the course of the presentation.

# IX. MULTIVARIATE ANALYSES OF OUTCOMES

Multivariate prediction equations were developed to predict selected outcomes of the study. The first type of outcome measure is categorical (Repeat, HSGrad); the second is continuous (GPA, Achieve, ITPA-IQ). These analyses afford some sense of the coordinate contributions of various sources of influence, as these impinge on the outcomes' measures. In an effort to represent composite aspects of the model depicted earlier on page 192, these analyses are reasonable substitutes for causal modeling, for which the data are not wholly suited. Discriminant analysis is used here to examine the categorical variables, with, for example, group membership in the group of graduates being compared with membership in the group of dropouts via a discriminant function. Multiple linear regression is used for the continuously distributed outcome measures.

A peculiarity of these analyses is that both discriminant analysis and regression analysis have problems with missing data from even one of the variables for a single case. To avoid this dilemma, the programs used cause any case to be deleted that lacks data on even one variable, irrespective of whether the variable triggering the deletion is entered into the regression solution or not. It will be recalled from Chapter VIII that different subsets of the data are available from different segments of the overall sample. This inevitably means that many cases are missing some of the data and are accordingly deleted from these analyses. Numbers of cases in the analyses are, thus, lowered and are quite variable across the analyses, as will be seen.

Repeat

In this analysis, 150 members of the experimental group and 13 of the control group were retained. The predictor variables placed in the equation were SES, Sex, CA, Treatmt, AO, Attend, Cope, Ability, HES, Depress, GPA, Achieve, Singfac. A stepwise entry procedure was used for the predictors of Repeat. At step 1, GPA was entered; Achieve appeared at step 2. No other variables achieved a p = .05 or less contribution to the equation, the next two in order being Cope (p = .06) and AO (p = .10). The contributions of GPA and Achieve to the prediction were as follows:

| Variables | Part. $R^2$ | F | p | Ave. Sqd. Canon. Corr. | p |
|---|---|---|---|---|---|
| GPA | .2546 | 54.987 | .0001 | .2546 | .0001 |
| Achieve | .0340 | 5.637 | .0188 | .2800 | .0001 |

The result of this analysis seems obvious, in that it is usually teacher assigned grades that result in repetition of a grade as an administrative action. To an extent Achieve is a related event that follows grades. It is noted that treatment does not come into the equation even at the p = .10 level. Thus, if Treatmt contributes to Repeat, it must do so indirectly by its effect on GPA and/or Achieve. A fundamental problem of this analysis is the dramatic loss of cases, especially in the Repeat group. This results from the fact that many of the repeaters were not among the sample of 210-212 who participated in the main followup study. Hence, they had data missing and were lost, via casewise deletion.

Another observation is in order for the preceding results. A large common core of shared variance exists among the following variables: GPA, Achieve, Repeat, AO, Cope, Ability, and Depress. This substantial degree of overlap becomes apparent when they are placed in a single equation to predict Repeat, with most having little unique variance to contribute to predicting Repeat beyond that available from GPA alone. The common core of meaning suggests that some children enter school from homes with low AO, below average Ability, symptoms of Depress, and a nonCope style. This results in poor early school performance as indexed primarily by daily work that falls below expectations for age level and, hence, leads to low early GPA and its correlate low Achieve. These children then Repeat a grade. This experience for the child and family tends to reinforce low AO and contributes to continued low Cope, high Depress, and probably hampers the developed expression of general Ability. Thus, Repeat is not a remedial event but rather leads on toward eventual school dropout, as earlier discussed in Chapter VII. The Treatmt of HOPE participation, thus, did not eradicate this underlying cluster of interrelations in the sense of setting them aside. Instead, it likely worked via enhancement of AO as an ongoing component and, further, gave an early grades boost to GPA, Ability, and Achieve, as well as reducing Depress and increasing the tendency of children to manifest a coping style. That is, it worked to strengthen those tendencies within the cluster that fostered early school success. As noted in Chapter VIII, the research design employed does not permit a direct and comprehensive empirical test of the model's suggestions about the channels through which influences converge on the event, Repeat.

As is evident in the preceding table, the average squared canonical correlation was only .2800; i.e., the solution accounted for 28% of the variance in Repeat. Using discriminant classification from the solution, including the correlated variables GPA, Achieve, and also Cope and AO (solution uses all variables entered at $p = .10$), 165 cases were found to have data on all four variables as well as Repeat. The equation correctly classified 130 (78.79%) of the cases. Misclassifications occurred for two children who failed a grade (false negatives = 15.38%) and for 33 children who did not repeat a grade (false positives = 21.71%).

## HSGrad

Multiple discriminant analysis was also performed for HSGrad. Predictor variables entered were Sex, SES, CA, Treatmt, AO, Attend, Achieve, Ability, Cope, HES, Depress, GPA, and Singfac. Due to casewise deletion that results from missing data on any variable, this analysis was performed on only 134 cases, including 14 dropouts. Just two variables could be entered at $p = .05$ or below: GPA and Treatmt. Other variables that were included with limits set at $p = .15$ were Cope and Achieve. The solution based on the first two variables was:

| Variables | Part. $R^2$ | F | p | Ave. Sqd. Canon. Corr. | p |
|---|---|---|---|---|---|
| GPA | .1810 | 29.182 | .0001 | .1810 | .0001 |
| Treatmt | .0672 | 9.430 | .0026 | .2360 | .0001 |

As in the analysis of Repeat, GPA is the most important variable, overshadowing learning as indexed by objective testing (i.e., Achieve, which can only be entered at $p = .15$). HSGrad shows the over time effect of the Treatmt. As was true for the analysis of Repeat, HSGrad is not a function of demographic indicators such as SES, when more direct and functional measures are entered as competitors for the variance of the criterion.

HSGrad appears to be influenced by a cluster of variables, as judged from the univariate analysis of variance results. These are, in descending order of importance, GPA, AO, Cope, Achieve, Ability, Treatmt, Depress, HES, and SES. However, when the first variable, GPA, is entered into the equation, it absorbs much of the variance of all the other variables in the set except Treatmt. Treatmt's effect is so independent of GPA's effect that its univariate F ratio is essentially unchanged after GPA is entered in the equation. There is, thus, seen to be a unitary core of variance affecting graduation that is quite similar to that affecting Repeat, as earlier discussed. Second, the entry of Treatmt further reduces the potential contribution of AO and HES, thereby suggesting its continuing influence on these two parenting variables.

Using for discriminant classification the four variables whose probability is less than .15 (i.e., GPA, Treatmt, Cope, Achieve), 136 cases had sufficient data to be classified. These included 14 dropouts and 122 graduates. Misclassification occurred for one dropout (false negative = 7.14%) and for 21 graduates (false positive = 17.21%).

The same discriminant solution was used to classify 30 children for whom no graduation information was available but who had scores for the four variables used in the discriminant weighting equation. Of these, 22 (73.33%) were classified as probable graduates and eight (26.67%) as probable dropouts. Among the known graduates and dropouts, these respective rates predicted were for graduates, 75.00%, and dropouts, 25.00%. The probable distributions predicted for the unknown cases do not differ from those for the known cases. Within this unknown group were six control group cases, of which four (66.67%) classify as probable dropouts. The remaining 24 unknown HSGrad cases included four probable dropouts (16.66%), a finding associated with the experimental group. Thus, among the unknown HSGrad cases, the finding of a higher probability of graduation among the experimental HOPE cases is sustained. Unfortunately, due to the high rate of false positives in the known HSGrad part of the sample, more detailed analysis of the unknown cases was bypassed, i.e., too large an error term exists for false positives in view of the small number of unknown control cases (i.e., n = 6 only) to permit further comparisons of the unknown experimental and control cases in a reliable manner.

### Discriminant Conclusions

Although less than 30% of the variance was accounted for in either the discriminant analysis of Repeat or that of HSGrad, useful classification discriminations were possible. Nevertheless, both solutions resulted in undesirably high rates of false positives, i.e., actual graduates who were incorrectly classified as dropouts. Thus, factors other than those measured and included as predictors in the equations are obviously important to both graduating and not failing a grade. On the other hand, false negatives were uncommon in both equations. This is a desirable property in a prediction equation of this type that might be used to identify individuals at risk of some unfavorable outcome in order to deliver a preventive service to them. That is, false negatives are not acceptable because they deprive those needing services from receiving them, while false positives would often result in no more than providing a superfluous service.

The solutions to both the Repeat and the HSGrad equations were similar, suggesting that GPA is a highly salient precursor of unfavorable outcomes for both. Moreover, a similar common core of underlying variance was seen in univariate analysis of variance. These analyses suggested a common functional etiology for both school failure and school dropout. Functional indicators of high risk are suggested for both outcomes, using both parent and child measures. Within this multivariate framework, GPA may operate as a surface indicator of these underlying processes. If this is true, the multiple functional correlates of GPA point to areas of child and parent behavior toward which effective interventions might be directed. Clearly, social status variables such as SES, Sex, and CA offered little to the clarification of HSGrad or Repeat; these demographic markers are consistently outperformed by measures that index actual behaviors through whose actions such surrogates as SES indirectly capture meaning.

## GPA

As a continuous variable, GPA was analyzed with multiple linear regression analysis. The model used in the first of these analyses raises the question of how well GPA might have been predicted from the ITPA subtests, a battery of preschool differential ability scores, and from parent measures that could have been obtained in the preschool period (i.e., if they had in fact been obtained). It should be understood that the parent variables actually used were obtained at a later time and, for the experimental group, include some increment due to Treatmt. For this reason, the ITPA scores were selected to represent a comparable post-Treatmt condition; these are the posttest scores obtained at the end of the 1970-71 HOPE program year. The predictor set entered into the equation is, thus, the 10 ITPA-R subtest scores in standard score form (i.e., developmental age corrected), AO, HES, and Singfac. Due to casewise deletion for missing data on any variable, only 114 cases were included in the analysis. A stepwise regression procedure was used. Four variables were entered into the solution, all contributing highly significantly to the prediction of GPA. The summary table follows:

| Variables | Part. $R^2$ | Model $R^2$ | F | p | Model p |
|---|---|---|---|---|---|
| AO | .4821 | .4821 | 105.21 | .0001 | .0001 |
| ITPA 9 | .0568 | .5390 | 13.81 | .0003 | .0001 |
| ITPA 10 | .0209 | .5599 | 5.28 | .0234 | .0001 |
| ITPA 8 | .0244 | .5844 | 6.47 | .0124 | .0001 |

The solution suggests that parental academic orientation is the most important influence on GPA. This AO measure was, however, obtained after the GPA had been established and cannot be said to have preceded GPA. Nevertheless, AO did precede ChGrade by five years and is correlated with it for the full sample at a highly significant level (r = .56, n = 175, p = beyond .0001), so the inference of influence of AO on grades is not unwarranted. The ITPA variables are assigned the following titles: ITPA 9, Grammatic Closure; ITPA 10, Manual Expression; and ITPA 8, Verbal Expression. This last subtest might as well be called Fluency of Concept Application, which is the actual task performed via verbal output. The overall variance accounted for by this model is impressive (58.44%), with over 82% of this amount being attributable to AO by itself.

In order to further examine the possible historical influence of AO and other parenting variables on child outcomes, a low visibility outcome was selected: ITPA-IQ. This outcome's low visibility is in contrast to GPA, since over the intervening years before measuring AO and other parent variables children's grades were regularly brought up to parents for review and reaction. As such, grades may have heavily influenced AO, Support, and so on. ITPA-IQ, by contrast, was never brought up. In the original study, it had never been computed, nor had ITPA subtests 1-10 ever been transformed into standard score form. These score transformations and expressions were all completed during the processing of the followup data and cannot directly have influenced parental viewpoints or actions as such.

Based on the foregoing reasoning, a regression analysis was performed with ITPA-IQ as the "silent" preschool measure that by its noncontaminating silence might give evidence of the influence of AO and other parenting variables on child outcomes--with the objective of citing any supportive evidence as indirectly corroborating the view expressed above that AO influenced GPA, as it did ChGrade. The predictors entered were Sex, Treatmt, SES, Depress, AO, Support, HES, Health, and Erikson. A sample of 111 cases had the necessary data points to be entered into this equation. A stepwise regression procedure was used. The regression summary appears below.

| Variables | Part. $R^2$ | Model $R^2$ | F | p | Model p |
|---|---|---|---|---|---|
| AO | .1674 | .1674 | 22.12 | .0001 | .0001 |
| HES | .0401 | .2075 | 5.51 | .0207 | .0001 |
| Health | .0348 | .2423 | 4.96 | .0280 | .0001 |

If variables are allowed which meet the regression program's cutoff of $p = .15$, one additional variable, Support, would be entered, with the addition of .0178 to the Model's $R^2$.

The foregoing finding can be seen as supporting the view that the parenting variables, and most prominently AO, contributed to the crystallization of the child's intellectual skills prior to the time that the child's academic record, as such, came into being. That is, ITPA-IQ predated the entire academic record and further was not a known fact to anyone associated with the HOPE program, including parents. Most reasonably it was influenced by parental behaviors rather than vice versa. Therefore, AO, obtained 10 years later, likely would have correlated highly with preschool AO if it had been measured. For the same reasons, the hypothetical existence of a high relationship between AO when measured in 1978-1979 and the score that would have been obtained on AO during the preschool period leads to the inference that the later measurement of AO can also be used as an indirect indication of its precursor AO in the preschool period. As such, the measure of AO can also be used to illumine the influence of preschool AO on GPA--imperfectly, but likely with substantial accuracy.

Based on the foregoing considerations, attempts were next made to predict GPA from the following variables: Sex, SES, Treatmt, AO, Support, Attend, SlfConc, HES, Depress, ConAdpt, Disorg, Health, IntDep, and Erikson. Following that, a second version of the model is presented that is identical except for the inclusion of Ability. Stepwise entry is again used. Results for the less complete model are:

| Variables | Part. $R^2$ | Model $R^2$ | F | p | Model p |
|---|---|---|---|---|---|
| AO | .4569 | .4569 | 135.43 | .0001 | .0001 |
| Health | .0713 | .5282 | 24.18 | .0001 | .0001 |
| ConAdpt | .0368 | .5650 | 13.47 | .0003 | .0001 |
| Support | .0200 | .5850 | 7.61 | .0065 | .0001 |
| Depress | .0124 | .5974 | 4.82 | .0295 | .0001 |

If additional variables with p falling between .05 and .15 are considered, these would be added in descending order of contribution: HES, Sex, and SlfConc. This solution is based on 162 cases missing no data on any of the variables.

This model suggests that GPA is the product principally of AO, with the child's Health also being an important contributor. Probably Attend does not appear because it is largely a function of Health also. Child personality, as represented here by ConAdpt, also adds significantly. The appearance of Support in this solution indicates that it is more than just a weak form of AO. Conceptually, Support relates more to such issues as participation and instigation in the Fels measures than does AO. Finally, the child's emotional state is entered via Depress. The results of this equation demonstrate in yet another context that family structural variables are of little importance compared to functional indicators from both parents and children.

Next the model is expanded by adding Ability as follows:

| Variables | Part. $R^2$ | Model $R^2$ | F | p | Model p |
|---|---|---|---|---|---|
| AO | .4569 | .4569 | 135.43 | .0001 | .0001 |
| Ability | .1035 | .5604 | 37.69 | .0001 | .0001 |
| Disorg | .0389 | .5993 | 15.43 | .0001 | .0001 |
| Health | .0243 | .6236 | 10.19 | .0017 | .0001 |
| Support | .0131 | .6367 | 5.66 | .0186 | .0001 |
| ConAdpt | .0111 | .6478 | 4.92 | .0289 | .0001 |

For this expanded model, the same 162 cases were included. If the solution is extended to include variables contributing at p .05 to .15, Sex and Depress are added, at which point Disorg is dropped. Note: Disorg and Depress are significantly related, and boys are much more often high on Disorg than girls, so the addition of Sex and Depress displaces Disorg as redundant of them. The ConAdpt style is displaced from its position in the briefer version of this model by the contribution of Ability; higher ConAdpt is known to reflect greater Ability. Once differences in Ability are accounted for in the solution, the contribution of Disorg is enhanced. Other than for these changes, the same subset of predictors accounts for variations in GPA in both versions of the model. AO is the most important of these. AO, of course, accounts for part of Ability, so the contribution of Ability to GPA here is to be understood as the amount it offers after the effects of AO have been removed. Structural variables again remain noncontributory to the explanation of GPA in the context of more adequate functional indicators of their variance such as AO and Support.

Why is Treatmt absent from the solution? This may be due to its being less an independent source of variance than a source that has contributed broadly to many of the successful predictors, as indicated by its significant correlations with all of the following: AO, Ability, Disorg, Support, and ConAdpt. The spread of the effects of Treatmt across so many areas makes it impossible to differentiate it from the effects of the several components to which it has contributed. Treatmt could by contrast appear in the prediction of HSGrad, because it had only one competitor variable for this task, GPA, from which a portion of its variance could be differentiated. Thus, there are special problems within regression analysis of being unable to detect the effects of a variable such as Treatmt that intrinsically relates to many other variables in an equation, since collectively they tend to pull it out of focus. This contrasts with a narrow treatment effect that might impact on only a limited part of a data set.

## Achieve

A final pair of multiple linear regression problems was developed to clarify the contributions of various factors to Achieve. There are 184 cases with complete data for the first analysis and 182 for the second. The first version of the model is briefer, containing: Attend, SES, AO, Cont, Support, Indulge, ConAdpt, Disorg, Depress, Internl, and IntDep. The expanded version contains the foregoing variables plus Ability and GPA. Results for the briefer version are:

| Variables | Part. $R^2$ | Model $R^2$ | F | p | Model p |
|---|---|---|---|---|---|
| AO | .4562 | .4562 | 153.49 | .0001 | .0001 |
| SES | .0491 | .5053 | 18.08 | .0001 | .0001 |
| Depress | .0146 | .5199 | 5.49 | .0202 | .0001 |
| Support | .0108 | .5307 | 4.14 | .0432 | .0001 |

Inadvertently, SES only--rather than SES plus HES--was included in both versions of this model. This was not rerun because in the case of Achieve, SES is a slightly better predictor ($r = -.37$) than HES ($r = .33$). For completeness, however, it would be desirable at some future time to reanalyze the regression equations for Achieve with HES also included.

What this first version of the model makes apparent is that AO is the major factor explaining Achieve, with a significant additional amount being due to the effect of family social status/home environment type issues. Again, emotional issues in the child's life are important, as shown by the inclusion of Depress. Finally, Support again shows its ability to predict beyond what AO accounts for.

The model is next expanded to include Ability and GPA in the attempt to predict Achieve. The solution includes the following variables:

| Variables | Part. $R^2$ | Model $R^2$ | F | p | Model p |
|---|---|---|---|---|---|
| GPA | .6748 | .6748 | 375.64 | .0001 | .0001 |
| Ability | .0428 | .7176 | 27.29 | .0001 | .0001 |
| AO | .0177 | .7353 | 11.95 | .0007 | .0001 |

If the solution is extended to include variables contributing at a p level of .05 to .15, SES would be added to the table, with $R^2$ increasing by another .0055 to .7408.

In this expanded model for predicting Achieve, GPA is far ahead of all other variables. It should now be recalled, within the overall model explicated in Chapter VIII, that both AO and Treatmt are seen as contributing to Achieve and concurrently to GPA and Ability. Treatment is no longer included in the model, because its effects cannot be seen as a differentiable source of variance in an equation containing so large a number of variables to which it contributes: GPA, Achieve, Ability, AO, Support, Depress. Its effects are presumably present, nevertheless, in diffused form in both variations of this model. A similar diffusion of variance likely occurs in the latter version of the equation that affects the contribution of AO, since it likely contributes to GPA, Ability, and Achieve in ways that result in much of the variance being inadvertently assigned to what amount, in a sense, to linearly dependent variables. That is, while GPA and Achieve become a part of the child's record in different ways, in their averaged forms in the present study, both approachs being but varying ways of measuring the same construct: accumulated learning. The same fundamental problem has long been recognized relative to group Ability test scores. The fact that one group test yields an Ability score and another yields an Achieve score does not change the fact that the methods of measurement are essentially the same, making method-specific variance high. This problem is overcome when an individually administered test of intelligence is correlated with an achievement test score. From these facts it must be concluded that the second version of the model results in a solution that probably vastly underestimates the importance of AO to the outcome. This is not an insurmountable empirical problem, but within the context of the present study it is not possible to apply path analytic models that would more fully describe the network of relationships encountered within the kinds of measures encompassed in the HOPE followup.

## Conclusion

Selected aspects of the HOPE effects model presented in Chapter VIII have been explored here with the multivariate procedures, discriminant analysis, and multiple linear regression. Prior chapters had examined small fragments of the overall network of interrelationships. Larger fragments were modelled in the present chapter. These have worked up to a point to clarify and support the effects model. A problem encountered has been that Treatmt impinges on a larger number of the outcome variables such that its effects are diffused and difficult to isolate. To a lesser extent, this is true also for the most influential of the parenting variables, AO. Especially problematic have been the substantially and, to an extent, linearly dependent relations among GPA, Achieve, and Ability. When these are present together in an equation that seeks to predict one of the three or an equation in which they all relate to the criterion, they tend to obscure the effects of other variables--especially Treatmt and AO. Nevertheless, other lines of evidence have been adduced that make it clear that AO and Treatmt are influential in senses that cannot easily be accounted for except through the attribution of causal properties to them. This inferential process has been tortuous at times. If the data would lend themselves to path analytic methodology, the model for doing so can be made sufficiently explicit to be tested. Unfortunately, the data are not readily amenable to this approach.

# X. PERSONALITY AND SOCIAL BEHAVIOR

The HOPE followup study provides an unusual opportunity to examine the relationship between child personality and social behavior and the other variables of the study. Because child personality and social behavior reflect in many instances the influence of sex typing, it is necessary to look at these relationships separately for boys and girls. The variables generated from the School Behavior Checklist are used to represent the interpersonal and intra-psychic issues of childhood to the extent that these are captured by the Checklist. It will be recalled that the scores used are all factor-based except for Depress. Separate correlational matrices were computed for boys and girls between the Checklist variables and 30 of the other variables from the study. With this many calculated Pearson product-moment correlations, by chance one would expect an average of 1.5 significant correlations per sex between the set of study variables and each of the Checklist variables. This fact can be used to determine which Checklist variables should be reported and which should be treated as related to the variables of the study at only chance levels.

Checklist variables that appear to relate to the study variables at only chance levels are Aggress, EgoDfns, Restles, ActDfns, and Agitate. BlntMnp is unrelated for girls, but is related for boys. Among the list of other variables from the study, the following appear to be basically unrelated to the personality and social behaviors for either sex: SlfConc, Nurt, Singfac, MatPerc, Indulge, Reject, Internl, IntDep, and a special sum of the 13 task scores. Thus, nearly one-third of the "other" variables do not relate reliably to the child's personality and social variables. Among other variables for boys, relationships are at a chance level for Support, ITPA-IQ, and FamComp. Other variables do not relate reliably to girls' personality and social behaviors for Repeat, AcadOcc, Cont, RejDisc, Health, Erikson, and Attend.

By the preceding process of elimination, nearly one-half of the overall number of calculated coefficients can be bypassed as providing no information about personality and social behavior within the data context of this study. If, irrespective of unreliable regions of the matrices, all statistically significant relations are considered, boys obtain 77 and girls 63 reliable coefficients. When all of the intersections of unreliable variables are scanned for the presence of significant correlation coefficients that erroneously appear in the preceding totals (i.e., 77 and 63), these reduce for boys to 61 and for girls to 51. Concentrating on these reliable residuals eliminates a great deal of random "noise" from the relationships and permits interpretation to focus only on the more stable aspects of the boys' and girls' matrices. This strictly quantitative approach to random noise removal had to be adjusted in certain instances in recognition of special factors operating in certain regions of the matrices that logically suggested some significant correlations should be retained. That is, judgmental fitting was used.

## ConAdpt

ConAdpt is an interpersonally coping or adaptive style that emphasizes getting along with others, being somewhat more a follower than a leader, fitting in, and adjusting to circumstances more than struggling against them. In prior studies (Gotts et al., 1969; Johnson, 1976), children with a style closely resembling this variable were seen to be doing well on average in terms of a wide variety of indicators. The earlier name applied to this same essential complex of behaviors was conventional conforming.

Within the current data matrices, ConAdpt is the most extensively related variable for both boys and girls, whether judged from the full set of correlations or from the reduced set that resulted after random noise was reduced. While many of these relations were reviewed previously in Chapter IV, only control cases were considered, and boys and girls were combined. In the present analyses, boys and girls are looked at separately, and the experimental cases are included with the control cases in all analyses. The presently reported relationships are, hence, actually new ones. Furthermore, the emphasis here is on possible differential patterns of relations for boys and girls.

Sex differences. Treatmt affected boys' ConAdpt status positively ($r = -.25$; only reliably greater than zero-order correlations are reported) but was unrelated for girls. Academic indicators related more strongly to ConAdpt for boys than for girls, with all relations being favorable for both sexes for Repeat, Achieve, Ability, and GPA. SlfConc appeared to relate reliably to ConAdpt for girls (-.34) but not for boys. The relations between ConAdpt and parenting/family environment variables were consistently stronger for boys than for girls, with boys having reliable and stronger relations for all of the following: SES, AO, Nurt, Cont, HES, RejDisc, Indulge, and IntDep. The foregoing relations are also reliable for girls, except for: Nurt, Cont, RejDisc, Indulge, and IntDep. Among the parenting variables, relations are significant and of similar magnitude for boys and girls for Support, ParAtnd, and IntInvl.

Only girls have significant relations for the parenting variables, Singfac and Erikson. Boys' scores on ConAdpt relate significantly to HSGrad (.34) and Health (.21), but girls' scores do not relate. Here it is readily seen that the vast majority of relations differ between boys and girls. All statistically reliable relations show that ConAdpt is favorably linked to the other variables. Due to the differing patterns of relations for the two sexes, it will be useful to develop a descriptive profile for each.

Conventionally adaptive boys do very well in school, as suggested by the following relations: Achieve (.51), Ability (.49), GPA (.59), and ChGrade (.51). They are unlikely to have repeated a grade (Repeat, -.31) and more likely to have graduated from high school (HSGrad, .34). They have somewhat above average AcadOcc orientation (-.21). Their SlfConc is not predictable from a knowledge of their ConAdpt scores. As preschoolers they performed well on standardized tests (FrostPQ, .25; ITPA-IQ, .25). They are healthier on average than their peers (Health, .21). Higher ConAdpt boys come from homes with high AO (.53) and above average Support (.19), Nurt (.21), and HES (.31)/SES (-.31). Their parents manifest IntInvl (.22) and attend school functions more often (Par Atnd, .31). Their parents are below average in indulgent attitudes (Indulge, -.25), less likely to have RejDisc attitudes (-.26), and more likely to favor intellectual autonomy (IntDep, -.32) and low Cont (-.20). In prior research, the implications of being ConAdpt are consistently favorable, and so it is for boys.

Girls who are more conventionally adaptive in style have more favorable school indicators, as follows: Achieve (.41), Ability (.39), GPA

(.48), and ChGrade (.43). These girls are somewhat less likely to have repeated a grade (.18), but their probability of graduating from high school is not affected by their status on ConAdpt. While girls' AcadOcc is unaffected by ConAdpt, it is positively related to their SlfConc scores (-.34). ConAdpt girls did very well as preschool children when taking tests (FrostPQ, .51; ITPA-IQ, .35). Their Health is not predictable from ConAdpt. Higher ConAdpt girls come from homes with higher AO (.44), Support (.20), and HES (.20)/SES (-.24). Their parents manifest greater IntInvl (.23) and higher ParAtnd (.27). Their parents are also higher in generativity, measured either of two ways: Erikson (.19) or Singfac (-.20). Girls' standings on ConAdpt are unrelated to other measured parenting variables.

Overall, boys' status is more extensively and more favorably affected by ConAdpt than is girls' status. Moreover, boys' ConAdpt scores were affected by the HOPE Treatmt (-.25), with boys in the experimental group later behaving in a more conventionally adaptive manner. Girls' standing on ConAdpt was unaffected by the Treatmt.

### Depress

Depress shows the second most extensive network of interrelationships with the other variables of the study, either with or without the suppression of random noise in the correlation matrices for boys and girls. In a number of respects these matrices bear resemblances to those for ConAdpt, as will become evident, except that the direction of relationships is reversed because of the unfavorable implications of Depress. Moreover, Depress' meaning and implications are more similar for boys and girls than was true for ConAdpt, although some sex differences are seen.

Sex differences. For boys, Depress relates more strongly to Achieve than it does for girls. The other school indicators are about comparable for the two sexes. The preschool test scores for girls related more strongly to Depress than was true for boys. For girls, Depress relates more strongly than it does for boys to Support, HES, SES, IntInvl, and ParAtnd. Boys' correlations reflect a larger relation of Depress to Erikson than is found for girls. Other parent measures are comparable across the sexes, except that Cont relates more strongly for boys. Boys higher on Depress have less MatPerc; this is not so for girls. Finally, Depress is lowered for boys who were treated with HOPE, while the Treatmt left the girls unaffected.

Depressed boys have unfavorable records on all school indicators: Attend (-.19), Achieve (-.49), Ability (-.43), GPA (-.53), ChGrade (-.37), Repeat (.26), and HSGrad (-.22). Their maturity of social perception is also delayed (-.22 for MatPerc). Depress is unrelated for boys to Health, SlfConc, and AcadOcc. Depressed boys had lower FrostPQ (-.24) preschool scores on average. The Treatmt somewhat reduced Depress (.18), thereby reducing the impact of Depress on the other indicators already cited. Depressed boys came from families higher on Cont (.19) and RejDisc (.21) and lower on AO (-.47), HES (-.24)/SES (.22), Erikson (-.27), IntInvl (-.20), and ParAtnd (-.20).

Girls' school indicators are uniformly unfavorably related to Depress: Attend (-.18), Achieve (-.34), Ability (-.37), GPA (-.50), ChGrade (-.37), Repeat (.26), and HSGrad (-.22). Depressed girls had not done as well on standardized tests as preschoolers: FrostPQ (-.39) and ITPA-IQ (-.36). None of the other child measures related reliably to

Depress for girls. Depressed girls came from families with higher RejDisc scores (.25) who were lower on AO (-.41), Support (-.24), HES (-.38)/SES (.40), IntInvl (-.32), and ParAtnd (-.37). Girls' Depress scores were unaffected by the Treatmt.

A review of the above findings shows that sex differences were less prominent for Depress than for ConAdpt. Although Depress relates to all other variables, in all reliable relationships, in a manner opposite that of ConAdpt, it is evident that it is not just a mirror image of it. For example, ConAdpt relates to Erikson for girls, while Depress relates to Erikson for boys. In both sets of analyses, however, the Treatmt affected boys' scores for Depress and ConAdpt, and girls' scores were affected for neither by Treatmt. Attend was unrelated to ConAdpt for either sex but related to Depress for both boys and girls.

### Disorg

Like Depress, Disorg is another intra-psychic variable. It has the third most extensive network of relations with other variables in the study. None of the relations of Disorg with other variables fell into regions of the matrix that were affected by random noise.

Sex differences. Disorg is somewhat more substantially related to boys' Achieve than is true for girls. The AO of boys' parents also relates more strongly to Disorg than does that of girls' parents. Girls' preschool test scores are more highly related to Disorg than boys' scores are. Both boys' Health and HSGrad are adversely related to Disorg; these are unrelated for girls. Boys' Disorg scores were diminished by Treatmt; girls' scores were not.

Most school indicators for boys relate unfavorably to Disorg: Achieve (-.46), Ability (-.35), GPA (-.53), ChGrade (-.41), Repeat (.26), and HSGrad (-.21). Attend is unaffected. Boys' FrostPQ preschool scores relate unfavorably to Disorg (-.26). ITPA-IQ is unrelated. Boys' Health relates adversely to Disorg (-.26). No other child variables are related to Disorg. Personally disorganized boys come from families that are substantially lower on AO (-.54) and somewhat lower on HES (-.26). Interestingly, SES totally fails to detect this linkage. No other parenting variables relate to Disorg among boys. Treatmt results in lower Disorg for boys (.18).

As with ConAdpt and Depress, so with Disorg, slightly fewer significant relations to the other variables appear for girls than for boys. A majority of girls' school indicators relate reliably to Disorg: Achieve (-.31), Ability (-.39), GPA (-.48), ChGrade (-.31), and Repeat (.27). Neither Attend nor HSGrad relates to Disorg for girls. Girls' preschool test scores clearly relate to Disorg: FrostPQ (-.39) and ITPA-IQ (-.27). No other child measures relate reliably to Disorg. The same two parent measures relate to Disorg for girls as do for boys: AO (-.33) and HES (-.33). Again, SES fails to identify the relationship that HES points up, just as was true for boys. Girls' standing on Disorg is unaffected by Treatmt.

It is very interesting in the foregoing analyses that HES related to Disorg for both boys and girls, but SES failed to identify this relationship for either sex. This contrasts with the coordinated performance of HES and SES for both sexes in relation to both Depress and ConAdpt. The situation for Treatmt is the same across ConAdpt, Depress, and Disorg;

it changes favorably the incidence of all three for boys; for girls, Treatmt leaves all three unaffected. The pattern and magnitude of relations by sex between the preschool data and Disorg were almost identical to those between the preschool data and Depress. The patterns of relations between the school indicators and Disorg closely resemble those for Depress, except that (a) Disorg and HSGrad are unrelated for girls, and (b) there is a larger spread between boys' and girls' ChGrade relations to Disorg than there is for their relations to Depress; this well may be linked to the difference noted for HSGrad.

### AnxDep

The fourth largest cluster of relations between a Checklist measure and other variables of the HOPE study occurs for AnxDep. For the first three Checklist variables reviewed, the number of significant relations for boys and girls was fairly well balanced, with boys having a few more than girls for each. This pattern is reversed for AnxDep, with 10 significant relations appearing for girls and only five for boys. This is probably due to AnxDep being generally higher in girls than boys and likely bearing a fundamental relation to one aspect of sex role typing in girls.

Sex differences. The relationships for girls between AnxDep and the other variables are generally somewhat larger than for boys, in those instances that both are statistically reliable. More typically, however, girls have relations between AnxDep and other variables, which for boys are unrelated. Variables fitting this latter pattern are Repeat, FrostPQ, ITPA-IQ, SES, and HSGrad.

For boys, AnxDep reliably relates to four school indicators: Achieve (-.28), Ability (-.15), GPA (-.26), and ChGrade (-.20). No other child variables related to AnxDep for boys. In the family backgrounds of boys higher in AnxDep, only AO related reliably (-.21). No other relations existed for boys. All relations suggest AnxDep plays an unfavorable role in the lives of boys.

Among girls, AnxDep related reliably to nearly all of the school indicator variables, although all are at modest levels: Achieve (-.27), Ability (-.34), GPA (-.35), ChGrade (-.26), Repeat (.19), and HSGrad (-.23). Only Attend was not implicated in these relations. FrostPQ (-.34) and ITPA-IQ (-.30) both were reliably related to the AnxDep style in this sample of girls. No other child variables related to AnxDep. Only two parent/family variables related to AnxDep among girls: AO (-.33) and SES (.21). All of the relationships for girls suggested that the implications of an AnxDep style are uniformly unfavorable.

AnxDep does not appear to account for any relations with the other variables that have not already been accounted for as well or better for both boys and girls by other Checklist variables. Nevertheless, AnxDep does represent a personality style that may well be featured more prominently in the makeups of a segment of children who do not especially manifest elevated amounts of the other characteristics heretofore reviewed. Thus, it may have utility for identifying an unfavorable pattern of school relations in a subgroup of the child population. If so, its utility is likely to be much greater for girls than for boys, as reflected in the much greater salience of the AnxDep dimension for girls, as compared with boys.

ShySrs

Like AnxDep, ShySrs produces more reliable relations for girls (seven) than for boys (five). From a temperamental perspective, ShySrs and AnxDep share some underlying characteristics psychologically. As will be seen, however, ShySrs differs empirically from AnxDep in obvious ways.

Sex differences. Unlike the Checklist variables considered earlier in this series, the patterns of relationships are quite different for boys and girls. It is not just that the variables relate more strongly for one sex, with that same sex displaying a larger number of significant correlations. With the exception of two variables that are significant for both sexes, the correlates of ShySrs are altogether different for boys and girls: Ability and ChGrade. Interestingly, GPA is considerably less prominent than ChGrade, suggesting that ShySrs may have more serious implications at the secondary than the elementary level as a style for both boys and girls.

Boys with higher ShySrs scores were lower on Ability (-.17) and ChGrade (-.41). They were also less likely in Treatmt (.16) via HOPE. Their parents had reduced IntInvl (-.23) and were lower in generativity (Erikson -.31).

ShySrs girls were lower on Achieve (-.19), Ability (-.24), GPA (-.23), and ChGrade (-.31). They were more likely to Repeat (.16) a grade in school. ShySrs girls came from homes lower in AO (-.21) and of lower SES (.22).

As is evident above, the parental correlates of ShySrs for boys differ markedly from those for girls. Boys are affected by the Treatmt; girls are not. Finally, girls were affected at both the elementary and secondary levels, but boys seemingly were affected at the secondary level primarily.

### Antisoc

Antisocial hostility is related to seven other variables for boys and only three variables for girls. Two of the significant variables for girls were also significant for boys. HES and GPA--and frequent counterparts of these variables, SES and ChGrade--do not operate in the usual ways. That is, GPA is significant for both boys and girls, while ChGrade fails to reach significance for either sex. HES is significant for girls and nearly significant for boys, but SES is clearly nonsignificant for both sexes. Besides GPA, FamComp also relates significantly to Antisoc for boys and for girls.

Sex differences. The meaning of Antisocial is uniformly negative for boys. Boys with stronger Antisoc tendencies were lower on Ability (-.17) and GPA (-.21). They were further more likely to Repeat (.21) a grade and to fail to become a HSGrad (-.20). Their school Attend records were also poorer (-.32). Antisoc boys were slightly more likely to come from nonnuclear family groups (FamComp .17) and to have parents displaying lower academic orientation (-.21).

Girls with higher Antisoc scores received lower GPAs (-.18) from their teachers. They were more likely to come from nonnuclear family systems (.21) and to have parents who provided a less educationally stimulating home environment (HES -.19).

## BlntMnp

The blunt and manipulative style of interpersonal relations was unique among the Checklist-measured variables in relating to the remaining variables for one sex only. Girls' BlntMnp scores related to none of the other major variables of the study. Contrastingly, boys' BlntMnp style was reliably related to eight of the other variables of the HOPE study. It was noted in the preliminary discussion of BlntMnp in Chapter IV that it did not necessarily have negative implications. As will become clearer momentarily, BlntMnp in fact has positive implications for boys. This conclusion is congruent with earlier work (Gotts et al., 1969) that identified both the conventionally adaptive (conventional conforming) and the blunt and manipulative (manipulative controlling) styles with coping behavior patterns in the school environment. The present pattern of findings adds importantly to prior understanding of the BlntMnp style by suggesting that it has positive implications for boys and has a more or less neutral meaning when encountered in girls. Thus, BlntMnp is the most strongly sex-typed of the social behavior patterns studied via the Checklist. It is also the final of this series.

Sex differences. The essential character of the sex differences has already been noted. What remains to be seen is the favorable implications of a BlntMnp style in boys. BlntMnp is associated for boys with high Achieve (.21), Ability (.26), and GPA (.21). These boys have on average higher AcadOcc orientations (-.20). They come from homes of somewhat higher SES (-.23). Their parents express higher generativity (Singfac -.21, Erikson .30). Finally, higher BlntMnp boys have parents who more often indicate that they value an Internl (.23) orientation in their sons;

that is, they favor self-directed behavior more than other-directed behavior in these boys.

## AO

Having now demonstrated the important contribution of sex differences to understanding the meaning of personality and social behavior in the HOPE sample, when boys' and girls' data are analyzed separately, this same approach is taken next with selected parenting variables. This is carried out in order to clarify the differing implications of the various parent characteristics for child outcomes and characteristics--as a function of sex of child. The preceding findings of this chapter, taken together with those that follow below, necessarily raise the question of whether the school effects model presented in Chapter VIII is sufficient, or whether it might be more effective to develop somewhat different models for boys and girls. This possibility certainly seems congruent with findings from the Fels Research Institute studies of achievement orientation. Of this possibility, Crandall (1967) wrote that it may be "...that girls achieve for reasons different from boys" (p. 176), as her own research indicated.

Academic orientation is the first of the parenting variables selected for analysis by sex. It is the variable that has demonstrated in this study the largest number of significant relations. Its relations have, moreover, often been of a higher magnitude. The table below permits inspection of the question of possible differential effects of AO by sex. Some of the variables in the following table have appeared elsewhere in the text before, but only here are they presented side by side, thereby providing a common context for the consideration of their possible conjoint meaning.

Relations of AO to Dependent Variables by Sex

| Variable | Boys | Girls |
|---|---|---|
| Repeat | -.26 | -.35 |
| HSGrad | .47 | ns |
| Achieve | .63 | .66 |
| Ability | .57 | .60 |
| GPA | .67 | .69 |
| ChGrade | .54 | .59 |
| Attend | .20 | .22 |
| AcadOcc | -.21 | -.31 |
| SlfConc | -.33 | -.39 |
| FrostPQ | .27 | .50 |
| ITPA-IQ | ns | .49 |
| Cope | .54 | .47 |
| Aggress | -.24 | ns |
| ConAdpt | .53 | .44 |
| AnxDep | -.21 | -.33 |
| EgoDfns | -.20 | ns |
| Disorg | -.54 | -.33 |
| ShySrs | ns | -.21 |
| Depress | -.47 | -.41 |
| Antisoc | -.21 | ns |

The child variables that are not listed in the preceding table were omitted because they were nonsignificant for both sexes. The scores for Tasks 1-13 were not reviewed for possible inclusion.

The preceding table shows that AO has a fairly uniform meaning across the sexes, with a few notable exceptions: HSGrad, FrostPQ, ITPA-IQ, and Disorg. It is reasonable, further, to emphasize that AO's implications are consistently favorable. Finally, while not listed above, it is noted that the relation of Treatmt to AO is the same for boys (-.20) and girls (-.21)--Treatmt increases AO for both sexes' parents.

## Generativity

The linkages of generativity to child outcomes are considered here using the most differentiated representation of generativity: GTrust through GIdent, which should be most sensitive from the perspective of possible differential treatment of the sexes by parents.

Generativity and Dependent Variables by Sex

| Variable | GTrust | | GAuto | | GInit | | GIndust | | GIdent | |
|---|---|---|---|---|---|---|---|---|---|---|
| | B | G | B | G | B | G | B | G | B | G |
| Repeat | ns | ns | .22 | ns | .29 | ns | ns | ns | ns | ns |
| HSGrad | ns | ns | ns | ns | ns | ns | ns | ns | ns | ns |
| Achieve | ns | -.36 | ns | ns | ns | -.32 | ns | -.34 | ns | -.36 |
| Ability | ns | -.34 | -.25 | ns | ns | -.36 | ns | -.33 | ns | -.34 |
| GPA | ns | -.31 | ns | ns | ns | -.28 | ns | -.26 | ns | -.34 |
| ChGrade | ns | -.30 | ns | -.22 | ns | -.32 | ns | -.29 | ns | -.30 |
| Depress | ns | ns | ns | ns | ns | ns | .23 | ns | ns | ns |
| Attend | ns | ns | ns | ns | ns | ns | ns | ns | ns | ns |
| AcadOcc | ns | ns | ns | ns | ns | ns | ns | ns | ns | ns |
| SlfConc | ns | .29 | ns | ns | ns | .26 | ns | .22 | ns | .33 |
| FrostPQ | ns | -.34 | ns | ns | ns | -.34 | ns | ns | ns | -.30 |
| ITPA-IQ | ns | ns | ns | ns | ns | -.30 | ns | -.28 | ns | -.30 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Cope | ns | ns | ns | ns | ns | ns | ns | ns | ns | ns |
| Aggress | ns | ns | ns | ns | ns | ns | ns | ns | -.20 | ns |
| ConAdpt | ns | -.22 | ns | ns | ns | ns | ns | ns | ns | -.20 |
| AnxDep | ns | ns | ns | ns | ns | ns | ns | ns | ns | ns |

The other variables that were presented for AO were EgoDfns, Disorg, ShySrs, and Antisoc. All of these were nonsignificantly related to the variables GTrust through GIdent for both boys and girls. One additional child variable was considered: ChActiv. It relates significantly for all comparisons:

Generativity and ChActiv by Sex

| Sex | GTrust | GAuto | GInit | GIndust | GIdent |
|---|---|---|---|---|---|
| Boys | -.22 | -.24 | -.22 | -.33 | -.37 |
| Girls | -.27 | -.22 | -.37 | -.36 | -.42 |

With the exception of the variable, ChActiv, sex differences are pervasive between GTrust through GIdent and the child variables. This contrasts with AO, where similarity of relationships for the sexes was the general rule. ChActiv, in this respect, functions in relation to generativity as the other child variables do to AO. Looking now at the five age-components for generativity, only five significant relations appear for boys; this number might be expected by chance, more or less, if the relations to ChActiv are not considered. GAuto does not enter into a reliable number of relations for girls. Accordingly, the relations between generativity components and child variables will not be further interpreted for boys; in the case of girls, GAuto will be excluded from comment. It now becomes apparent that the significant relations for girls all occur between the four remaining generativity components and these eight child measures: Achieve, Ability, GPA, ChGrade, SlfConc, FrostPQ, ITPA-IQ, and ConAdpt. All of these are correlations showing that generativity results in more favorable outcomes for girls. It fails to predict boys' outcomes, except relative to ChActiv, which relates to all five generativity components for both sexes. Although unreported earlier, it likewise relates to AO (boys .35, girls .40), these relations also being favorable.

The foregoing analysis would suggest that generativity is more important for girls, but a different picture emerges when, instead of the components, the sum of the Eriksonian ratings is used:

Erikson and Child Variables by Sex

| Variable | Boys | Girls |
|---|---|---|
| Achieve | ns | .39 |
| Ability | .23 | .43 |
| GPA | ns | .34 |
| ChGrade | ns | .39 |
| Repeat | .24 | ns |
| HSGrad | ns | ns |
| SlfConc | ns | -.38 |
| ChActiv | .20 | .35 |
| Depress | -.27 | ns |
| Aggress | .22 | ns |
| ConAdpt | ns | .19 |
| ShySrs | -.31 | ns |

| | | |
|---|---|---|
| Restles | .23 | ns |
| Agitate | .19 | ns |
| FrostPQ | ns | .28 |
| ITPA-IQ | ns | .49 |
| BlntMnp | .30 | ns |

The preceding table indicates that Erikson relates to the two sexes' scores on the following variables in about the same ways as were seen for the generativity components: Achieve, Ability, GPA, ChGrade, SlfConc, FrostPQ, ITPA-IQ, and ConAdpt. That is, all eight of these variables are related for girls to both Erikson and generativity components, and are little related in this way for boys (minor exception: Ability). The performance of ChActiv is also similar. What, however, clearly differs is that Erikson relates to six Checklist variables for boys and not for girls: Depress, Aggress, ShySrs, Restles, Agitate, and BlntMnp. Thus, for boys Erikson seems to relate to a more active dispositional stance (Aggress, BlntMnp, Restles, and Agitate) as opposed to a passive stance (ShySrs, Depress). Erikson appears, hence, to be linked more to sex-typed issues than are the generativity components.

Thus far it has been seen that AO was a fairly balanced predictor of child outcomes by sex, being somewhat better for girls. The generativity components were clearly superior for girls. Erikson displayed this same pattern, except that--relative to the Checklist variables--it was a better predictor for boys of their outcomes. In addition to academic orientation and generativity, a third positive parenting variable will be considered as to the strength of its relations to child outcomes by sex, namely, nurturance.

Nurt and Child Variables by Sex

| Variable | Boys | Girls |
|---|---|---|
| Achieve | .23 | ns |
| Ability | .27 | ns |
| GPA | .28 | ns |
| ChGrade | .37 | ns |
| Repeat | ns | ns |
| HSGrad | .31 | ns |
| SlfConc | -.26 | -.24 |
| ChActiv | .31 | ns |
| Depress | ns | ns |
| ConAdpt | .21 | ns |

The foregoing are the only reliable relationships in the child outcomes series. They predominantly indicate that Nurt is a source of favorable outcomes in boys. Nurt is, thus, complementary to AO and the generativity measures, accounting for variance in boys' outcomes that is not as well indicated by the other facilitative parenting variables. Thus, the analyses by sex for AO, generativity, and Nurt have suggested that differential prediction models of child outcomes for boys and girls might result in a better overall graduation model (see page 192) than would a model designed for the sexes combined.

Separate models for boys and girls would also make sense in terms of the effects of the HOPE Treatmt. Treatmt was similarly related to AO for the sexes (boys -.20, girls -.21). Treatmt did not reliably relate to Erikson for either sex. The generativity components were affected only for GAuto among girls (.22), while all five components were affected by the Treatmt for boys (.25, .38, .23, .26, and .22). In a sense, Treatmt seems to have done two things simultaneously by (a) affecting components of generativity, and (b) rendering the changed components less salient in the analyses of child outcomes by component by sex. For example, Treatmt changed GAuto, after which GAuto did not relate to child outcomes for either sex when experimental and control groups were combined. That is, the Treatmt neutralized this relationship. If it is further recalled that the generativity components did not relate to child outcomes for boys, then it appears that the effect of Treatmt on these for boys was, similarly, neutralized. Nurt was affected by Treatmt among boys (-.20) but not girls (ns). All Treatmt effects were in favorable directions. The differing effects of Treatmt on these primary facilitative parenting variables might better be accommodated within a high school prediction equation each for boys and girls.

In further support of the foregoing suggestion, it is noted that Treatmt also relates differently to other parent/family environment measures when analyzed by sex: HES (boys -.28, girls ns); IntInvl (boys -.27, girls ns); Support (boys -.23, girls ns); and Expects (boys -.24, girls ns). Thus, in several measured respects, the Treatmt appears more extensively to have affected the parents of boys than parents of girls. Future studies could likely benefit by building on these observations regarding the differing empirical networks affecting the achievement of boys versus girls, their personality styles and social behavior, and the major life outcomes of their school performance indexed by such critical markers as Repeat and HSGrad.

# XI. PARENTING AND SCHOOL-HOME RELATIONS

In the preceding chapters the principal emphasis has been on detectable events in the lives of the HOPE children. Emphasis has also been given to parents who participated in HOPE via their interaction with home visitors and with their children. Furthermore, the effects of HOPE on parents have been mentioned with particular reference to the parenting/home environment variables: AO, Support, and HES, as these have been interwoven with the child findings throughout the text. In this last of the topical chapters, attention is turned to the important area of school-home relations. In this connection it is here noted that AEL staff were led by their experiences with HOPE to further study communications between school and home as a key issue (Gotts & Purnell, 1985, 1986, 1987; Gotts & Sattes, 1982). While this program of research examined critical aspects of school-home communications throughout the school years, it especially explored relations at the secondary school level--a level at which a consensus of the prior literature suggested that little was known of what might work to produce greater parent involvement. Fortunately, the HOPE sample, about whom much was already known, was available. With a sample of 184 of the families from the main followup study, staff conducted the same kind of interview (Gotts & Sattes, 1982) used in the more geographically dispersed School-Family Relations program, which was also carried out under NIE sponsorship.

Before looking at school-home relations in the HOPE sample, however, it will be instructive to review some terminology. Parenting has come to be used in recent years to mean performing the functions of a parent. Parenting thus shares much meaning with the more traditional term, child-rearing. Parents who are engaging in school-home relations perform parts of the parenting or child-rearing role. This is true whether the parent activities are directed toward the child, significant family members, or school personnel. School-family relations activities of parents are, thus, conceptualized as adult role performances that occur within the region defined by the overlapping interests and goals of two institutions: family and school. School personnel also perform within this same region of overlap. When they perform in this manner, school personnel may be thought of as participating in the child-rearing function, while the term parenting does not as readily apply. This review of terminology demonstrates that home-school/school-home relations is not a thing apart from parenting/child-rearing but, rather, an integral part. School-home relations is not, hence, an option--not a nonessential or frill. School-home relations is an inevitable domain of behavior occurring in the region of overlap. The question, then, is not whether there will be school-home relations; it is, "What kind of school-home relations will there be, and with what results?" The approach to the findings of this chapter is evident in the perspective afforded by the foregoing definitions and distinctions. School-home relations is parenting/child-rearing.

## ParAtnd

Participation by the parent in school-home relations attains practical expression by means of attendance at such school activities as athletics, band/musical performances, plays, community education, and parent-teacher conferences. ParAtnd measures the frequency of parents' attendance from Never (0) through Very Often (5). Sex-linked correlations for ParAtnd appear in the following table:

| Variable | Boys | Girls |
|---|---|---|
| Attend | .22 | ns |
| Ability | .23 | .47 |
| Achieve | ns | .43 |
| GPA | .28 | .41 |
| ChGrade | .38 | .33 |
| HSGrad | ns | .25 |
| SlfConc | -.22 | -.24 |
| Depress | ns | -.37 |
| ConAdpt | .31 | .27 |
| Cope | ns | .26 |
| PPVT-IQ | ns | .34 |
| FrostPQ | ns | .36 |
| ITPA-IQ | ns | .49 |
| SES | -.42 | -.41 |
| Urbaniz | ns | ns |
| FamComp | ns | ns |
| FamSize | -.33 | -.28 |

Demographically, ParAtnd is associated with higher social class and small family size, but not with FamComp or Urbaniz. Across a range of child variables, it rates for girls 12 times and for boys six times. Unlisted child variables are nonsignificant for both sexes. On average, parent attendance relates more strongly to girls' characteristics than to boys'. Relations between ParAtnd and the child variables are dissimilar between the two sexes nine of 12 times (75%). ParAtnd is judged overall to relate at a moderately high level of importance to girls' functioning and at a mild level of importance to that of boys.

Formal Organizations

A school-family variable not previously mentioned is the number of involvements that a parent has in formal organizations (FormOrg) associated with the school. These include belonging to a PTA/PTO, PAC, athletic boosters, band boosters, or other formally recognized groups. Responses were coded by type of group and from the total number of these the variable, FormOrg, was formed. This number could range from None (0) to Two or More (2). FormOrg related to HOPE measures as follows:

| Variable | Boys | Girls |
|---|---|---|
| Ability | ns | .23 |
| GPA | .20 | .22 |
| Depress | ns | -.29 |
| PPVT-IQ | ns | .34 |
| FrostPQ | ns | .18 |
| ITPA-IQ | ns | .30 |
| SES | -.28 | ns |
| Urbaniz | .23 | ns |
| FamSize | -.23 | ns |

Boys' parents participate in a larger number of formal school-sponsored organizations when the family is of higher social class, more urbanized, and of smaller family size. The single positive association for boys must be considered a chance event in view of the number of correlations computed. Only a mildly positive association exists between FormOrg of parents and indicators of how well girls are doing. FormOrg is obviously much less important than ParAtnd for how well a family's own children are doing.

## Contact

As discussed earlier, Contact indexes the frequency of a parent's contacts with school personnel. Contacts may be formal/planned or informal. Frequency can range from Never (0) to Frequent (4). Careful analysis of the findings suggest that Contact, in the sense registered here, is unrelated to demographics or child indicators for either boys or girls.

## Attitude Toward Contact

Parents' expressed attitudes toward their contacts with school personnel were rated as either Negative (1) or Positive (2). It was possible to make these ratings for only about one-half of the sample of parents, due to insufficient information being available in many records to judge this aspect of parent attitude. Attitude toward contact (AttCont) related as follows to selected variables from the HOPE study:

| Variable | Boys | Girls |
|---|---|---|
| GPA | .24 | ns |
| Repeat | ns | -.37 |
| Restles | -.45 | ns |
| ActDfns | -.35 | ns |
| Agitate | ns | -.56 |
| Antisoc | -.62 | ns |

While AttCont displays only a small number of relations, the size of these relations is unusually large. These are exceedingly interesting relationships as well. Parents whose sons have exhibited antisocial behavior at school and who are high in restlessness and active defensiveness are much more likely to hold negative feelings regarding their contact with school personnel. This is very weakly counterbalanced by the tendency for parents to hold positive attitudes toward contact when their sons have positive grades. In the case of girls, the presence of motor agitation and a history of having repeated a grade had the most impact upon parent attitudes toward contact with school personnel as a negative or unrewarding experience. The generalization to be drawn is that positive attitudes toward contact with school personnel are weak, and negative attitudes are strong. Further, it is the experience of having a child with significant problems in school that is most likely to engender hostile or dissatisfied feelings regarding the results of contacts with personnel. It is interesting that issues of academic attainment are not nearly as salient to such feelings as are issues of unacceptable or disturbing student behavior. To place the finding in a broader perspective, it is necessary to recall that these strong relations can be inferred for only about one-half of the sample. It is, nevertheless, troubling to realize that a school system might do an outstanding job in academic areas and still produce a serious undercurrent of negative parental feeling due to its lack of success in working with parents to resolve student behavior problems satisfactorily. Parents feel strongly about wanting to be notified of any behavior problem at school that might become serious. Secondary level parents in particular are concerned that their children's schools may fail to involve them in a timely manner (i.e., typical remark, "before it's too late") in resolving behavior problems (Gotts & Purnell, 1985, 1987).

## Rating School-Home Relations

Also as a part of this 1982-1983 parent interview, school administrators consistently requested information about how well their schools were relating to families. In order to satisfy their desire for such information, parents were asked to give a rating to their child's school for its performance in the area of school-home relations (RateRel). These ratings ranged from Poor (1) through Excellent (5). In general, one would hope that such ratings would be made based on effort and results rather than on the basis of personal biases. Interestingly, the ratings made by the mothers of daughters appeared to be unbiased in the sense that they were unrelated to demographic factors and were independent of child indicators. Mothers who had sons in the study also provided ratings that were independent of demographic factors. Nevertheless, they more positively rated schools' performance in this area if their sons were higher on Achieve (.35), ChGrade (.39), and ConAdpt (.22), and lower on Disorg (-.31). This demonstrates that, for families with sons, how well a son is doing in school may influence parental feelings of satisfaction about school-family relations.

## Overall Attitude

RateRel in the preceding section was generated by directing toward parents a fairly explicit rating task that invited a degree of objectivity. Overall attitude toward school provides quite a different perspective from a different data source. Overall attitude (OverAtt) was inferred from the overall interview session, taking into account not only answers to explicit questions but further weighing a parent's spontaneous and unsolicited comments and elaborations. The feeling tone expressed in this manner might be expected to be more personal than objective. Once again, demographics were not a significant factor in how parents of either boys or girls expressed their OverAtt. In the case of girls' mothers, OverAtt was slightly more negative if the child manifested EgoDfns (-.23) or had a more BlntMnp style (-.23). Mothers who had sons in the study had a more positive OverAtt if a son had a ConAdpt style (.30) and was higher on Cope (.31) or Achieve (.26). Mothers of sons were more negative if their child was Restles (-.33), Antisoc (-.26), Disorg (-.30), or AnxDep (-.24). Furthermore, mothers of sons were slightly more inclined to have a positive overall attitude if a son had never repeated a grade. OverAtt was, thus, somewhat more influenced by personal factors than was the RateRel variable.

## AcadSat and Expect

The variables AcadSat and Expect were measured during the School-Family Relations Interview, but will not be reviewed as a part of this section. Both are influenced by ChGrade, also from the 1982-1983 study, and as such are not so much representative of school-family issues as they are of individual achievement. In this respect, AcadSat and Expect have much in common with AO, since AO more thoroughly measured and included both of these components about five years prior to the school-family study. Nevertheless, it may be noted in passing over these that both AcadSat and Expect relate extensively to the child variables for boys and for girls.

IntInvl

Parental interest and involvement in the child's learning were summarized in the IntInvl ratings completed by AEL staff, based upon the entire impression made during the interview. For those for whom this judgment could be made, ratings ranged from Low (1) to High (3). Correlations computed separately for boys and girls between IntInvl and other variables were:

| Variable | Boys | Girls |
|---|---|---|
| Achieve | ns | .41 |
| Ability | .21 | .40 |
| GPA | .29 | .39 |
| ChGrade | .44 | .36 |
| Repeat | ns | -.22 |
| HSGrad | .24 | .34 |
| SlfConc | ns | -.34 |
| AcadOcc | ns | -.23 |
| Depress | -.20 | -.32 |
| ConAdpt | .22 | .23 |
| ShySrs | -.23 | ns |
| ITPA-IQ | ns | .42 |
| SES | -.39 | -.38 |
| Urbaniz | .25 | ns |
| FamSize | -.22 | -.29 |
| FamComp | ns | -.26 |

IntInvl is associated for both sexes with higher social class and small family size. It is higher among boys' parents living in more urbanized areas. Girls' parents have higher IntInvl if they are part of an intact nuclear family. IntInvl is, thus, influenced by demographic factors.

For the child variables, IntInvl relates to more of these for girls than for boys. Further, correlations for girls tend to be of slightly greater magnitude. Overall, IntInvl relates more to the academics variables and less to the Checklist indicators of personality and social behavior tendencies. All relations between IntInvl and the child variables are favorable for both sexes. An interesting crossover effect is found when the sexes are compared for relations between IntInvl and grades for elementary (GPA) versus secondary (ChGrade) school performance. For the elementary measure, the relationship is somewhat higher for girls (.29 versus .39), while the secondary level measure reverses this trend (.44 versus .36). Generally, children whose parents are higher in IntInvl perform better on many academic indicators, with this being more true for girls. These children manifest fewer symptoms of depression and are slightly more conventionally adaptive. Moreover, the girls have more positive self-concept by self-report and express higher academic-occupational outlooks. Boys of these parents are slightly less shy and serious.

## Mistaken Phone Contact

A final variable generated from the school-family interview resulted from a question asking whether the school had contacted the parent about the child being absent from school. Calling homes was a practice of the school systems involved in this study. Of the parents who had received such a call or who knew of another parent who had, a further question was asked: "When you received this call, did it cause you or your child to follow up in some way? (For example, to ask about any school work that was missed?)" In response to the followup question, various codable remarks were observed. One of these was that parents would remark that the call was a mistake, or they would indicate that the call had in fact accurately identified an attendance problem. If the parent said the call was a mistake, this was coded 2; if not a mistake, it was coded 1; indeterminate comments were coded 0 and not further analyzed. About one-half of respondents made remarks that were codable for this variable. Most parents identified the calls as warranted; a small percentage instead claimed that the call was a mistake. Certainly some errors are made with this type of absentee followup, but the variable also seems to measure a certain parental defensiveness. That is, a parent may deny the accuracy of a report made about their child, perceiving this as some kind of threatening communication that "accuses" their child and, hence, themselves of wrongdoing. Such defensive reactions are accompanied by angry feelings about being called. More typically parents acknowledge the circumstance of a child's absence and express appreciation for the school's special effort to inquire about the child's whereabouts and well-being. Interviewers were generally impressed with the appreciation expressed about this practice and were surprised when the occasional hostile reaction appeared.

When mistaken phone contact (Mistake) was analyzed for boys and girls separately, it was unrelated to demographic indicators for either sex. It was also essentially unrelated to child variables, except that girls whose parents claimed the call was a mistake were less likely to graduate from high school (r = -.34). With only one significant finding appearing out of the number of tests performed, this must be considered a chance event.

## School-Family Variables: Summary

Through the School-Family Relations program performed by AEL, many new insights were gained into successful practices at the secondary level. This progress was due in part to the rich variety of content sampled by the interview and the corresponding wealth of empirical meaning given to school-family relations. At the outset of the program, school-family relations was necessarily an overly abstract term. In the process of the program of research, it came to have several more concrete empirical meanings, such as ParAtnd, FormOrg, Contact, AttCont, RateRel, OverAtt, IntInvl, and Mistake. Actually many others were created, several of which have been elsewhere reported (Gotts & Purnell, 1985, 1986, 1987). Some of the variables reported in the present chapter, as will be readily apparent from inspection, were not among the main variables defined in Chapters II-IV and alluded to as was proper to do in Chapters V-X. Some of these variables are in fact mentioned here in Chapter XI for the first time in any of the AEL reports on the School-Family Relations program's findings. Yet, what has been especially unique about the findings reported in this chapter is not just the previously unreported variables but the perspectives gained as to the empirical correlates of the school-family variables by examining them separately for boys and girls from HOPE. In this way, HOPE in a sense marked the beginning of AEL's ventures in school-family relations and has at a subsequent time resulted in special opportunities to understand why school-family relations are important in terms of both child outcomes and parent attitudes and feelings toward schools. That is, the HOPE sample's participation in 1982-1983 in the AEL school-family study has added a longitudinal perspective, outcome measures, a richness of meaning that could only have otherwise come from conducting another equally elongated study. What remains to be seen is the experimental dimension that HOPE added to the program, which is the subject matter of the following section of this chapter.

## HOPE's Effects on School-Family Relations

The participation of the HOPE sample in the larger program of school-family relations research added an experimental dimension to that study. The experimental and control groups could be compared on the foregoing variables in order to determine whether the treatment had affected parent practices and attitudes. The far-reaching significance was heightened by the fact that these were not immediate posttreatment comparisons of possible differences; they were comparisons being made almost a generation later. That is, the treatment occurred when these parents' children were preschoolers, and the test of the treatment's effect was being made 12-14 years later, with these children now grown and either graduated or nearing graduation from high school.

Because of the sex differences noted earlier, separate analyses were carried out of the possible effects of the HOPE Treatmt on the variables generated from the School-Family Relations Interview. All comparisons appear below.

| Variable | Boys | Girls |
|---|---|---|
| ParAtnd | ns | ns |
| FormOrg | ns | ns |
| Contact | ns | ns |
| AttCont | ns | ns |
| RateRel | ns | ns |
| OverAtt | ns | ns |
| IntInvl | -.27 | ns |
| Mistake | .40 | ns |

No enduring effects of the Treatmt on these variables were noted for parents of girls. Of the eight comparisons made for boys, the HOPE-treated group of parents manifested more interest and involvement 12-14 years later. The HOPE-treated parents of boys were also less likely to react in a hostile or defensive manner to receiving an inquiry from school about their child's absence. Both findings had probabilities of less than .01.

One of the particularly intriguing sets of findings in this chapter was the strongly negative relation between parent attitudes toward contact with school personnel and four Checklist measures of behavior problems: Restles, ActDfns, Agitate, and Antisoc. This raises the question of whether a more differentiated analysis would possibly demonstrate an effect of HOPE Treatmt within this data set. This would ideally be checked separately for boys for Restles, ActDfns, and Antisoc, and for girls for Agitate. Unfortunately, the number of control cases becomes too small for AttCont to be stable when boys (n = 9) and girls (n = 12) have been separated, with the number of cases dropping to even lower levels at the intersections of AttCont with the various Checklist variables. Analyses could, however, be performed with the sexes combined, but with the disadvantage that the main findings (see page 237) were more or less sex-specific. Nevertheless, this method of analysis was attempted, as considered in the following paragraph.

With the sexes combined, the total sample of families who participated in the school-family interview was divided into experimental and control groups (with maximum _n_'s, respectively, of 68 and 21 on AttCont, which is about one-half of the total interview sample). Correlations were then computed between AttCont and the four behavioral variables for the two groups, as presented in the table below, with _n_'s also shown.

| Variables | Exper | Cont |
|---|---|---|
| Restles | -.53/67 | .14/21 |
| ActDfns | -.35/67 | .07/21 |
| Agitate | -.20/67 | .07/21 |
| Antisoc | -.43/67 | .07/21 |

First, descriptively, it may be noted that all of the correlations for the experimental and control groups are signed in opposite directions, showing a qualitative shift in the meaning of the relationships. All of the correlations for the experimental group are statistically reliable as being nonzero order, while none of the correlations for the control group is statistically reliable.

The inferential statistic selected was the significance of the difference between two correlations (Edwards, 1954), which is expressed as the standard deviate _z_, and evaluated for significance using the distribution of standard scores for the normal curve wherein a $\underline{z}$ value of 1.96 is reliable for a two-tailed test. The nondirectional test was used, because no directional hypotheses were offered in advance of the computations. The $\underline{z}$ scores computed were as follows: Restles (2.7399), ActDfns (1.6305), Agitate (1.0233), and Antisoc (1.9865).

The foregoing statistical tests indicate that AttCont relates differently in the experimental versus the control group to both Restles and Antisoc. The direction of the correlational differences means that attitude toward contact with school personnel cannot reliably be predicted in the control group from a knowledge of AttCont. By contrast, attitude toward contact becomes more positive when either restlessness or antisocial behavior is low (i.e., meaning of the negative correlation). Otherwise stated, this means that negative attitudes toward contact with school personnel, in the presence of significant child behavior problems, are characteristic of the experimental parents but not of the control group parents. This association with the HOPE Treatmt suggests that parents who receive home visitation had learned to expect that they and school personnel would work together to resolve or correct behavior problems, and they accordingly experienced greater frustration and dissatisfaction when this did not happen. That is, HOPE resulted in parents becoming more activist in their attitudes toward assuring that their children are assisted to behave acceptably at school. Further, they are likely to fault individual school personnel who are perceived as letting them and their child down in this regard. But while they fault school personnel, they do not comparably blame the overall school (i.e., see the different relations between the variables RateRel and OverAtt and the Checklist variables, as these contrast with AttCont). This most interesting finding points to the partnership aspect of school-family relations: schools are expected to do a better job for each child when parents become involved.

Although the original examination of relations between AttCont and the Checklist variables had revealed reliable relations for only the measures Restles, ActDfns, Agitate, and Antisoc (see page 237), the finding of a pattern of differences between experimental and control groups suggested that serendipity was at work and should be pursued to its logical conclusion. Accordingly, correlations were next examined separately for experimental and control families of the relations that might exist between AttCont and the remaining eight Checklist variables. Three of the eight variables seemed to conform to the pattern appearing for all four of the preceding variables, all illustrated in the following table:

| Variables | Exper | Cont |
|---|---|---|
| AnxDep | -.31/67 | .22/21 |
| Disorg | -.32/67 | .21/21 |
| ConAdpt | .21/67 | -.13/21 |

It will be recalled that ConAdpt is a positive behavioral pattern that is expected to have signs reversed from that seen for the problematic characteristics like AnxDep and Disorg, so the pattern for these three variables is fully congruent with that of the four already examined.

In order to complete the process, the significance of the differences between correlations test was again used for the tabled results above. The resulting _z_ scores were: AnxDep (2.0428), Disorg (2.0428), and ConAdpt (1.2894). The findings statistically support the conclusion that there was a HOPE Treatment effect for AnxDep and Disorg, as these relate to AttCont, this being as previously discussed.

The preceding findings of significant correlational differences between the experimental and control groups are not artifacts of the levels within these two groups of the four significant problem behavior factors: AnxDep, Disorg, Antisoc, and Restles. This is evident from the fact that the mean problem behavior levels are not different for AnxDep and Antisoc. They are different for Disorg and Restles, with the means of the experimental group being more favorable for both variables. Thus, the negative reactions of the experimental parents on AttCont are not an artifact of problems being at higher levels in this group. The same can be said for the nonsignificant directional patterns cited for ActDfns, Agitate, and ConAdpt. The first two are not different when the experimental and control groups are compared, and the last of these is significantly different, with the means favoring the experimental cases.

In addition to the preceding behavioral factors, the Checklist yielded the positive superordinate variable, Cope. The same procedures were used to analyze Cope. In the experimental group, Cope related to AttCont ($r = .33$, $n = 61$); it also related in the control group ($r = -.27$, $n = 20$). Analogously to the factor variables, Cope was differently signed in the two groups. A test of the significance of the difference of these two correlations resulted in a _z_ score of 2.2480. This indicates a statistically reliable difference between the two relationships. This finding, like those earlier reported for the Checklist, suggests that parents who received the HOPE Treatmt were activist in wanting their children to manifest acceptable and effective behavior.

To review, it was shown that HOPE affected the school-family variables, IntInvl and Mistake. Then, because of the fascinating findings about AttCont's relations to selected Checklist variables in particular, further analyses were performed separately for the experimental and control groups regarding the relations between Checklist variables and AttCont. These findings showed for four problem factor variables (Disorg, AnxDep, Restles, and Antisoc) that parents of the experimental group were more likely to hold negative attitudes about their contact with school personnel if their child was having behavior problems than was the case for control group parents. The converse is true as well: experimental group parents had more positive attitudes if their children were relatively free of behavior problems. The superordinate, positive behavior variable, Cope, likewise revealed a difference of relations with AttCont when the experimental and control groups were compared. Once more the difference indicated that experimental parents were more positive toward school personnel contacts if their child was doing well behaviorally. Together, these findings suggested that the home visitation component of HOPE resulted in improved school-family orientations in the experimental families, as compared with the control families. HOPE favorably influenced school-family relations, with these results persisting as long as 12-14 years after the treatment. School-family relations, in turn, were shown in the first half of the chapter to be associated favorably with child characteristics and school performance.

# XII. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

## Summary

Chapter I. Home-Oriented Preschool Education was very briefly described by reference to other sources. An overview was provided of the longitudinal followup study, within a sequential historical framework. The study's extensive scope is emphasized, as is its potential to illuminate family effects on children. In particular, emphasis is given to the potential of the study to indicate how functional indicators of family performance could be affected by early intervention even though social class remains unchanged.

Chapter II. Empirical and theoretical sources of the measurement procedures selected for the followup study are noted via an informal review of the several instruments used. General characteristics of the measures are discussed, section by section.

Chapter III. Attention moves in this chapter from the measures to the variables derived from them. These appear in the same order as that of the instruments in Chapter II. If variables have been derived by factor analysis, item analysis, rational scaling, unit weighting, or differential weighting, the methods employed are explained to an extent that will make apparent the operational definitions intended.

Chapter IV. Building now on the sources (Chapter II) and the operational meanings (Chapter III) of the variables, the construct meaning of variables is presented in this chapter. The method used is to present the correlations between an indicator variable and a series of other variables from the HOPE study. All correlations are computed for the control group only in order to clarify the meanings of variables in a sample of untreated subjects, thereby avoiding the possible contamination that might result from a treatment effect. After reviewing the correlates of each major indicator variable, an overall assessment is made of the status of the variable. Each of 72 major variables repeatedly referred to in later chapters is discussed, again following the same order used in Chapters II and III. It was concluded that the construct meaning of many variables was clarified satisfactorily; others appeared promising and required further study, some of which is carried out in later chapters; and a few variables were judged to be of possibly limited value to the HOPE followup study. Overall, the battery of measures was judged to be sufficiently replete with meaning. An alphabetic listing of the 72 variables closes the chapter, with mean, standard deviation, minimum and maximum values, and interrater and internal consistency reliabilities being presented. In instances that a reliability was unavailable, an estimate of the probable level of reliability is provided, based on available evidence.

Chapter V. Inferential studies are reported of the influence on child variables of selected major parent/family variables: academic orientation, support of learning, generativity, nurturance/affection, control/dominance, and home environment. Methodologically, each of these independent variables was divided at its midpoint separately for boys and girls. Boys high and low and girls high and low on the variable defined the independent variable effect, with SES being used as a covariate in each analysis of variance. That is, one-way analyses of variance with covariance were performed of a whole series of child measures. First, however, interrelations of the parenting variables are examined and discussed. The independent variables are further used to examine a series of "intermediate variables" from a School-Family Relations Interview--variables that function sometimes as independent variables themselves and at other times as dependent relative to the above-listed six independent variables. A quantitative assessment of what best predicts each dependent variable for boys and for girls appears as a tabular summary toward the end of the chapter. Academic orientation powerfully predicts many of the dependent variables; all of the independent variables were found to have potentially predictive value under particular identified circumstances. Even though similarity was often observed regarding what best predicted a particular dependent variable for both boys and girls, in several instances boys' and girls' scores were found to be dependent on different sources of influence.

Chapter VI. A particularly well documented model of parental influence is tested in this chapter using the variables nurturance/affection and control/dominance as the two factors of a two-way analysis of variance that further indicates SES as a covariate. The same dependent variables are again analyzed separately for boys and girls by this method. The data analytic model closely parallels the Schaefer (1971) hierarchical configurational model of parental behavior. As such, it permitted examination of the interactions, as well as the main effects for nurturance and control, that were already viewed individually in Chapter V. Sex differences in the findings were pervasive. The apparent importance of parental control/dominance was enhanced by the two-factor analysis of variance with covariance, as compared with its apparent level of significance in the earlier univariate analyses. As an extension of the model, a four-cell typology of parental style was formed: Hi Nurt-Hi Cont, Hi Nurt-Lo Cont, Lo Nurt-Hi Cont, and Lo Nurt-Lo Cont. Matrices were formed of means of dependent variables, with the appropriate means appearing in columns under each parenting style, separately for boys and girls--i.e., eight subgroup means (four parent style by child sex) represented each dependent variable. Predictions from the configurational model were formulated and then tested using the patterns of findings in the data matrices. Finally, the matrices were used for exploratory analysis of other empirical issues that had before been more or less elusive for particular dependent variables. This use of the parenting typology for exploratory analysis recognizes that parental membership in a particular cell of the typology may convey more information than do the two individual dimensions, Nurt and Cont, even when considered conjointly. It should be noted that all means used in this pattern analysis within the typology had been adjusted for SES. Pattern analysis within the typology was treated quantitatively to the greatest extent possible. This resulted in improved understanding of some of the relatively less well defined or elusive dependent variables.

Chapter VII. Having now extensively reviewed selected independent variables in Chapters V and VI, attention is turned to school promotion and retention as a major dependent variable indicator of school outcome. The correlates of promotion/retention are first presented. Five independent variables related to parenting/quality of home environment were found to predict retention in grade. The effect of the HOPE treatment was tested: children in the control group were more than two times as likely to have failed a grade than were children of the experimental group, a highly significant difference. Further analyses presented in the chapter suggest that the control group was representative of the untreated local school population; consequently, the treatment effect is not easily accounted for by alternate hypotheses. Moreover, it is shown that HOPE affected not only the rate of promotion, but also that the meaning of repeating a grade, judged from empirical correlates, was different and more favorable in the experimental than in the control group. For example, ability was less related to repeating a grade in the experimental group; thus, factors other than ability contributed, but the decreased influence of ability helps explain the lower rate of failing a grade in this group.

Chapter VIII. A second highly salient social indicator of school outcome is high school graduation (HSGrad). A special procedure is described by which the dropout rates for the four county systems for each of the graduation years 1981-1986 was used to predict the probable (expected) dropout rate for all children in the HOPE sample. These predictions were applied to the sample, when partitioned into experimental and control groups. The expected dropout rates for the two groups were not different from those of the local 24-class of graduation composite of which they were representative. Observed frequencies were actual graduation/dropout rates for the respective groups. Rate of HSGrad for the control group was almost identical to the predicted rate and not different from the composite that it represented. Rate of HSGrad in the experimental group was markedly improved over the predicted level, resulting in an observed dropout rate that was reduced over 50% from predicted. The dropout rate in the control group and in the composite of graduating classes was over double that of the experimental group. This is a highly significant change from the predicted level of graduation and dropout for this group. Applied cost analysis suggested that the HOPE experiment created a probable cost benefit of in excess of $8 million in expected increased earnings alone for the total of 73 dropouts that were prevented. Other categories of cost benefits were identified but without attempt to quantify them precisely. This chapter turns next to an overview of other treatment effects in the total sample. The chapter closes by presenting a model of the various influences that together account for high school graduation. The model is given a schematic/diagrammatic representation, and reasons are discussed for the inapplicability of path analytic modelling to the study's data. That fact leads to Chapter IX.

Chapter IX. In place of carrying out a causal modeling analysis of the HOPE and HOPE followup data, multivariate analyses were conducted. Multiple discriminant analyses were used to predict the categorical variables, Repeat and HSGrad. Multiple linear regression prediction equations were formulated for the categorical outcome variables, GPA, Achieve, and ITPA-IQ. In order to include the necessary relevant predictors in each question, in the face of the "casewise deletion" protections invoked by the respective multivariate statistical routines whenever there are missing data points, some shrinkage of sample size had to be accepted. Obtained results must be considered inferentially weaker than desired due to the substantial shrinkage that occurred in some instances. Nevertheless, some indication of predictive efficiency was possible in each of the reported equations. About 28% of the variance in Repeat and 23.6% of the variance for HSGrad could be accounted for; both equations, however, produced excessive false positive discriminant classifications, i.e., children who would incorrectly be classed as probable repeaters of a grade or dropouts. False negatives were relatively uncommon in the discriminant classifications. Other analyses resulted in high levels of prediction by regression: GPA ($R^2$ = .5844 in one and .5974 in another analysis) and Achieve ($R^2$ = .5307 in one and .7353 in another), with parental academic orientation figuring prominently as a predictor. Preschool ITPA-IQ was predicted in another equation ($R^2$ = .2423), with AO, HES, and child Health being the three most effective predictors in combination. Once more the inapplicability of path analytic modeling is acknowledged with regret.

Chapter X. Separate analyses of boys' and girls' personality and social behavior characteristics are reported for the full sample (i.e., for experimental and control groups combined). Conventional adaptive behavior proves to be very essential to boys' school adjustment; ConAdpt also relates strongly to the parenting variables. It is affected by the HOPE treatment. Depression is also extensively linked to other variables for boys, and it is affected by Treatmt. Disorganization has the third most extensive set of linkages; it is important for both boys and girls, but is affected by Treatmt for boys only. Anxious dependency is the fourth most interlinked of the Checklist variables, being somewhat more salient for girls and affected by Treatmt for neither sex. The shy and serious style, fifth ranked in importance, also is more salient for girls; it may represent more of a secondary school level issue; it was affected by Treatmt for boys only. The sixth most linked variable, antisocial, is somewhat more salient for boys and is unaffected by Treatmt. Blunt manipulative style is important for boys only; it is shown here conclusively to have positive implications for boys, as does ConAdpt for both sexes. Collectively, these findings indicate that it would be perhaps necessary to develop separate predictive equations for girls and boys for such variables as Repeat, HSGrad, GPA, and Achieve. This is, however, not attempted due to insufficient sample size to retrace Chapter IX's work separately for the sexes.

Because of the substantial and pervasive role of sex differences revealed in the foregoing, Chapter X continues with a revisitation of the parenting variables, AO, GTrust through GIdent, Erikson, and Nurt. Now, the relationship of other variables to parenting characteristics is studied separately for boys and girls. AO turns out to be fairly important for both sexes, but with some notable differences as well. Sex differences are pervasive when GTrust through GIdent are correlated with other variables separately for boys and girls. In general these generativity components turn out to be more salient for girls' well-being. On the other hand, the related composite variable, Erikson, relates to academic issues more for girls but relates only for boys to the Checklist measures. Nurt, on the other hand, proves to be much more important for boys than for girls. Sex role, as a component of child personality and social behavior, thus helps disentangle the interrelations of parenting characteristics and child outcomes, when analyzed in this manner. Chapter X looks finally at possible interactions between child sex and the HOPE treatment. It is apparent, and certainly not clearly anticipated in the research literature, that the HOPE treatment more extensively affected the parents of sons than of daughters. Seemingly, it is differences of relations between child and parent variables, when considered separately by sex, that underlie the differential impact of Treatmt by sex.

Chapter XI. The meaning of school-home relations is identified within the parental role function at the intersection or region of overlap of school and family institutions. AEL's school-home variables that are analyzed here in some depth are ParAtnd, FormOrg, Contact, AttCont, RateRel, OverAtt, IntInvl, and Mistake. Some of these variables are examined here for the first time, with findings appearing that are not reported elsewhere in AEL's extensive reports of school-family relations. These variables give substantial empirical meaning to the scope of school-family relations by making that meaning operational. The HOPE treatment was found to have increased parental interest and involvement in boys' families and to have lowered for these same families a nonconstructive defensive tendency measured by Mistake. Treatmt furthermore altered relations between parents' attitudes toward contact with school personnel and its correlates. The nature of these shifting relations to AttCont suggested that parents in the experimental group had become increasingly oriented to assuring appropriate behavior by their children in school, and to evaluating school personnel based on the extent to which they worked cooperatively with parents toward achieving this outcome. Effects of HOPE on school-family relations were detectable 12-14 years after the families participated; all appeared to be favorable effects. Improved school-family relations appeared in turn to have mediated more favorable child characteristics and school performance.

## Conclusions

The following conclusions appear to be supported by the aggregate findings of HOPE, as reported in the original approximately 50 technical reports (see Gotts, 1983, for citations of such reports) and by the research conducted through the various phases of the followup study.

Home-Oriented Preschool Education was an effective program that resulted in immediate gains for children who were exposed to any of the program components, including television by itself. Performance gains were documented at the preschool level in early concept development, perceptual-motor functions, vocabulary, and psycholinguistic abilities. Home visitation increased the level of these gains. The addition of a weekly group experience increased children's maturity of social interaction and their directed curiosity. External control groups each year established that the gains noted in the TV-only group resulted from the treatment and were not simply reflections of inevitable developmental processes.

Early conceptual development of children who participated in HOPE equalled or exceeded those in a kindergarten comparison group, with both groups being from similar demographic backgrounds. Yet, cost analysis showed that HOPE could be delivered, after amortization of initial development costs, for about one-half the per child cost of traditional kindergarten.

Replications of HOPE were successfully implemented from 1971-1973 in sites in Alabama, Ohio, Tennessee, and Virginia, as well as in a somewhat more urbanized part of West Virginia. Comparable gains of early conceptual development were established at all sites; replication sites did not assess the other areas of development that were studied in the original HOPE study. Two of the replication sites (Alabama and Tennessee) later participated as demonstration sites in the Office of Child Development's Home Start program; they were the only school-based demonstration sites in the original Home Start.

The first phase of the followup study indicated in 1975 that many of the original participants could still be located in the four-county area of southern West Virginia. The primary grade records of these children reflected for the experimental groups improved attendance, higher GPA, and increased objective test scores of achievement and ability.

More children were located during the main followup that began in 1978, following a period of intensive planning and preparation. Parents were generally willing to participate, although fathers who agreed to take part were clearly not representative, so the study concentrated on obtaining family data from mothers. Sample size was restricted to 212 families by available resources; additional families were identified and would have participated if the resources had been sufficient to include them. In any event, data were obtained from school records and through teachers using the School Behavior Checklist on a total of 342 children, irrespective of whether AEL had resources to fully involve the children and families in the main followup study. Continued followup through 1986 identified more children from graduation lists whose whereabouts could not be established definitely in the 1978 period. Subsets of the HOPE and HOPE followup data were, hence, available for different subsets of the sample. Data from all categories existed for a considerably smaller sample.

Children of the control group remained representative of the entire untreated school population from which these children were drawn. Effects of the original TV-only had largely disappeared after the second grade of schooling, making the community control group indistinguishable from the general school population. Effects of the group experience were also not perceptible after the first few years of primary school, leaving only the effect of home visitation to be studied as the longitudinally active treatment. That is, treatments that had registered primarily on the child (i.e., TV and group experience) tended to wash out over time; the effect of home visitation, which was jointly directed toward parents and children, persisted over time. This persistence is attributed to enhanced skills in the parents that could continually be used throughout the years of their children's development. Outside control cases were not contacted in view of their having had differing and noncomparable experience of schooling; differing school effects would have invalidated their inclusion.

The HOPE followup study developed an extensive battery of family and child measures. Parents' academic orientation, support of learning, generativity, nurturance, control, interest/involvement, and quality of home environment all served as useful functional indexes of family functioning. The predictive value of these functional measures repeatedly exceeded the value of such traditional structural indicators as SES. The followup study has contributed immensely to the clarity of the meaning of these family measures.

The School-Family Relations Interview takes only a short time to administer and generates a wealth of information about the individual family as well, in aggregate, as about the quality of the school-family relations that exist within a particular school or school district.

Child composite measures were developed to represent the central tendency over the entire school career for attendance, grade point average, achievement testing, and ability. Composites did not exclude useful information relative either to dispersion (standard deviation) or to across time trend (slope). The social indicators of school outcome, Repeat and HSGrad, were extremely well related to other variables of the study. The School Behavior Checklist is the source of the following highly sensitive measures: coping/noncoping style, conventionally adaptive, symptoms of depression, personal disorganization, anxiously dependent, shy and serious style, antisocial hostility, and blunt manipulative style. The Direct Child Interview proved to be of quite limited utility, resulting in only two useful indicators: self-concept and academic-occupational orientation. Selected parts of the Tasks of Emotional Development Test proved, after considerable psychometric improvement by AEL, to relate to variables of interest within the study.

Effects of the HOPE treatment registered prominently in the prevention of school failure (Repeat) and dropout (HSGrad). HOPE reduced these unfavorable outcomes by over 50% in the experimental group. The treatment increased the favorability of many measures for parents of boys: AO, Nurt, Support, HES, GTrust through GIdent, and Singfac. Treatment, however, affected only AO and GAuto among girls' parents. Boys' parents also showed improved school-family relations if they had received home visitation; this was not true for girls' parents. Both girls' and boys' ability and GPA were positively affected by HOPE. The remaining influences of HOPE on children were sex specific. Girls vastly benefited during the preschool period on all objective tests, while boys benefited along with girls on the measure of conceptual development only. These sex effects were never thoroughly examined in the original HOPE technical reports. Girls also showed, as a result of HOPE, higher achievement test results and more positive self-concept--variables that were unaffected for boys. Boys only benefited on the Checklist variables Cope, Depress, ConAdpt, Disorg, and ShySrs.

A composite model of the influences impinging upon high school graduation was developed. The individual linkages of the model were generally supported by statistical analysis, except that the pervasiveness and centrality of sex differences suggested that different prediction equations for boys and girls would likely account for a greater amount of the variance. It appears in fact that the achievement and school success of boys and girls are mediated by somewhat different processes, except that parents' academic orientation has quite similar implications for the two sexes. It is not surprising, therefore, that in the multivariate equations tested, AO repeatedly asserted its influence. Had it been possible to develop separate prediction equations for boys and girls, undoubtedly other parent variables would have appeared more prominently in the solutions for boys, and perhaps greater amounts of variance would have been accounted for in both sexes than was true with the sexes combined.

The overall conclusion is warranted that HOPE was an effective primary prevention program relative to academic issues for boys and girls.

Further, HOPE prevented unfavorable emotional patterns and personality characteristics in boys and enhanced the self-concepts of girls. It appears likely that HOPE's economic benefits to the participants and society were so large as to offset the costs of the experiment and the subsequent expenses associated with the followup study through all its phases, if these cost factors were to be fully quantified. Even the partially quantified benefits exceed $8 million.

## Recommendations

Future research on primary prevention and early childhood intervention can benefit from use of the refined parent and child measures used in the HOPE followup study.

In fact, if early childhood program emphasis is directed toward parents, outcomes should be measured by looking at both child and parent measures. While traditional measures of school progress should be included, so also should indicators of social-personal behaviors such as those sampled via the School Behavior Checklist. Another child characteristic that is productive to monitor is self-concept. AEL's experience with parent measures of academic orientation, support of learning, and home environment suggests that these are all pertinent to the goals of early childhood parent involvement, reliable and valid, and generally practical for inclusion in evaluation efforts. AEL's School-Family Relations Interview likewise would be a valuable inclusion. All of these measures established themselves in the HOPE followup study as capable of detecting program efforts long after the time of actual participation. They are also valuable in the sense of being subject to change, whereas parents' social class is not, as a function of learning experiences.

HOPE remains a viable alternative form of an early childhood program. What precludes its more widespread use is the availability of age-appropriate, curriculum-specific television materials. AEL has specified an effective design and delivery system. Somehow the television lessons should be produced.

Unlike the late 1960's when HOPE was developed, many fewer mothers are caring for their children at home and, therefore, are less available to carry out their part in such a program. However, AEL developed a parallel delivery system design from 1974-1976 that permitted the same kinds of experiences to be delivered, using the same materials, either at home, at a relative's home, in family day care, or in a day care center. Evaluations of that effort suggested that it was entirely feasible to deliver early childhood services in this manner. Moreover, to assure that parents will also learn enduring skills, methods were designed to coordinate events in day care with those at home, thereby providing experiential learning for parents, even if very parttime compared to the involvement of fulltime at-home parenting. AEL also designed and prepared materials to support parenting groups (the "Parent Discussion Guides"). Finally, AEL staff assisted in the design of a television series for parents of young children; this was eventually produced under the series name FOOTSTEPS. This combination of additional program design features appears to fully update the potential of HOPE to the circumstances of the 1990's. HOPE should, thus, be delivered through child care, where quality educational programming is an urgent priority (Gotts, 1988b), as well as being delivered via the family.

The effects of HOPE were different, depending on whether the participants were boys or girls. These differences appeared to result indirectly, however, from the different ways that parents responded to HOPE depending on whether their enrolled child was a daughter or a son. Furthermore, parent characteristics in some instances correlated differently with their children's function if the child was a boy rather than a girl. Consequently, the sex of the child interacted in many important ways with the HOPE treatment. So numerous and substantial were these kinds of findings that several of the study's results would have been diminished or totally concealed if many analyses had not been performed separately for each sex. Hence, it is clearly incumbent on those who evaluate program effects to attend closely to possible sex-linked findings.

The data analysis and reporting efforts represented here only commence a process that should be carried forward, since this rich and unique database undoubtedly has many more interesting findings to reveal. One method of making this more feasible in this time of downsized computers would be to repackage the data onto floppy disks for use with desktop microcomputers. This requires the creation of self-contained data subsets that would likely lend themselves to further analysis and including with each of these a series of the study's most important variables that might be needed or desired without having to access them from another data set. For example, the family case studies would easily fit onto a floppy disk together with at least the 72 key variables featured in this report (see list in Chapter IV).

Oftentimes excessive emphasis is paid to the immediate effects of educational programs. Yet, immediate effects need not necessarily be enduring; many early childhood effects have been found to fade away to an undetectable level after the treatment has been discontinued. Many of the findings in the HOPE followup study are compelling, because they reveal effects that last. Yet, such a perspective can only be obtained from longitudinal study. Notably the longitudinal view of HOPE was achieved despite the fact that HOPE was by no means designed as a longitudinal study. Thus, it is possible to reach longitudinal conclusions by after-the-fact methods; continuous longitudinal study effort and intent are not absolute prerequisites. Researchers should be alert to other databases that, like HOPE, may be raised to a longitudinal level.

Although the followup study ended in 1983, except for the subsequent tracking of graduation outcomes, the question of possibly gathering additional data in the future should be considered. Because even more individuals were located through the graduation lists, it is conceivable that as many as 400-500 of the children could still be physically located. Much could be gained by learning of their participation in postsecondary education, their career selection, whether they have established families, and, if so, what their own plans might be for helping their children. The first two of these variables logically continue to track the long-term outcomes of academic orientations of both parent and child. Differential social mobility between the experimental and control groups might be studied. Regarding their own parenting plans and orientations, invaluable intergenerational data might be generated and linked to their own parents' actual AO, generativity, Nurt and Cont, Support, HES, and so on.

That is, since so much is already known, by keeping the study open-ended still more could be learned at a fraction of the cost that would be required to perform research from an entirely new start. The study of HOPE should not end here. Means should be sought to carry it forward for the answers such studies might yield.

HOPE has influenced extensively the imagination and thought of early childhood practitioners and researchers. No systematic search has been made to fathom the full extent of that influence; an opportunity sample that came to the attention of AEL staff of references by others to HOPE appears in the Appendix. As a final recommendation, a thorough review and appraisal of HOPE's influence could prove to be a worthwhile contribution to the early childhood literature.

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## Appendix: Citations of HOPE

One indicator of impact or influence that has been used widely is citations in the literature. This indicator most often is regarded as signaling national recognition. Citations may appear in governmental publications, those oriented to practitioners, and those primarily for the research community. Citations of HOPE, the followup study, and related television and school-family relations work are grouped below into a series of convenient categories. These citations are an opportunity sample; no claim is made regarding the comprehensiveness of this listing, and indeed no such claim is warranted. These are simply citations by others of the AEL work.

1. All major Head Start "resource" lists and documents cite AEL materials for use by practitioners. For example, see Head Start's Tool Kit 76 and Home Start Report (1978).

2. Early childhood sourcebooks referencing this AEL work include:

   Butler, A. L. (1974). Early childhood education: Planning and administering programs. New York: Van Nostrand.

   Honig, A. S. (1975). Parent involvement in early childhood education. Washington, DC: NAEYC.

   Hymes, J. L., Jr. (1978). Early childhood education in review. Carmel, CA: Hacienda Press.

   USOE. (1975). Report of the national conference on parent/early childhood education. Washington, DC: Author.

3. The literature on parenting and home-school relations often cites the AEL work:

   Berger, E. H. (1981). Parents as partners in the educational process. St. Louis: Mosby.

   Boger, R. et al. (1978). Parent as teacher: Perspectives of function and context. NIE conference paper.

Dingle Associates. (1977). An annotated bibliography for child and family development programs. Washington, DC: U. S. Government Printing Office.

Education Commission of the States. (1979). Families and schools: Implementing parent education. Denver: Author.

Henderson, A. T. (Ed.). (1987). The evidence continues to grow: Parent involvement improves student achievement. Columbia, MD: National Committee for Citizens in Education.

4. Teacher preparation texts have made use of both research findings and reports:

Lay-Dopyera, M. Z., & Dopyera, J. E. (1981). Becoming a teacher of young children. Lexington, MA: Heath.

Morrison, G. S. (1978). Parent involvement in home, school and community. Columbus, OH: Merrill.

Nedler, S., & McAfee, O. (1979). Working with parents: Guidelines for early childhood and elementary teachers. Belmont, CA: Wadsworth.

Peters, D. L., Neisworth, J. T., & Yawkey, T. D. (1985). Early childhood education. From theory to practice. Monterey, CA: Brooks/Cole.

Webster, L., & Schroeder, R. M. (1979). Early childhood education: An overview. Princeton, NJ: Princeton Book.

5. Various sources on uses of media continue to cite AEL's work:

Abram, M. J., & Dowling, W. D. (1979). How readable are parenting books? The Family Coordinator, 28, 365-368.

Lesser, H. (1977). Television and the preschool child. New York: Academic.

Murray, J. P. (1980). Television and youth. 25 years of research and controversy. BoysTown, NE: The BoysTown Center for the Study of Youth Development.

Tennessee Teacher, January 25, 1980.

The HOPE procedure of using correlated print materials to accompany television for children and parents has become a widespread standard practice and has been incorporated into some Federal R.F.P. guidelines for media production:

6. The United States Agency for International Development featured the AEL HOPE program in a film for international distribution. The National Center for Educational Communication featured HOPE in the booklet series, Model programs. Childhood education, using the series title, "Appalachia Preschool Education Program" in 1970, as a contribution to the 1970 White House Conference on Children. This booklet is stored in ERIC as ED 045 216. The HOPE work was featured in 1976 by a visit from the National Advisory Council on the Disadvantaged. Their annual report for that year to the President and the Congress profiled HOPE. The continuing work on school-family relations is cited in:

   United States Department of Education. (1986). What works. Research about teaching and learning. Washington, DC: Author.

   The National Institute of Education, U. S. Department of Education, reported on the AEL work in its "Families as Educators" publications. For example, see the NIE 1984 annual report from this team which is reprinted in the proceedings:

   Indianapolis Public Schools and the Indiana Department of Education. MAPP$^2$. Maintaining active parent partnerships. (1987). Second National Conference. Indianapolis: Author.

7. Research reviews of early childhood experiments examine this work:

   Clarke-Stewart, K. A., & Apfel, N. (1978). Evaluating parental effects in child development. In L. S. Shulman (Ed.), Review of research in education (Vol. 6). Itasca, IL: Peacock.

   Goodson, B. D., & Hess, R. D. (1975). Parents as teachers of young children: An evaluative review of some contemporary concepts and programs. Stanford: Stanford University.

   Gordon, I. J. et al. (1975). Research report of parent oriented home-based early childhood education programs. Gainesville, FL: University of Florida.

   Shalaway, L. (1980). Country schools, forgotten but not gone. Educational R & D Report, 3(3), 6-10.

8. The AEL materials are available or distributed through various national resources and collections: ERIC; the Family Resource/Referral Center of the National Council on Family Relations, Minneapolis; the Early Childhood Resource and Information Center of the New York Public Library; the Family Resource Coalition, Chicago; and the National Center for Research in Vocational Education RRS Minilist, "Resources for Parent Education," among others.

9. The program's contribution to the Region of AEL's operation has been variously noted:

   Appalachian Regional Commission. (1979). Appalachia, 12(3).

   Ohio Commission on Early Childhood Education. (1984). Final report. Columbus, OH.

   Dunne, F. (1977). Choosing smallness: An examination of the small school experience in rural America. In J. P. Sher (Ed.), Education in rural America. A reassessment of conventional wisdom (pp. 81-124). Boulder, CO: Westview Press.

   Weaver, T. (1977). Class conflict in rural education: A case study of Preston County, West Virginia. In J. P. Sher (Ed.), Education in rural America. A reassessment of conventional wisdom (pp. 159-203). Boulder, CO: Westview Press.

10. The child competency base for HOPE has been used as a curriculum resource by many groups. By permission it has been used in its entirety by early childhood personnel in the state education agencies of both Minnesota and West Virginia.

11. Special educators often have recommended the HOPE work:

    Council for Exceptional Children. (1975). Division of Early Childhood Communicator, 2(3).

    Dil, N. (1983). Affective curricula: Theories, models and implementation. Topics in Early Childhood Special Education, 2(4), 25-33.

The foregoing is only a suggestive beginning for exploration of the influence of HOPE, since many hundreds of sets of the seven-volume series, the "HOPE Manuals," and the "Competency Base for Curriculum Development in Early Childhood Education" (four volumes) were requested and distributed. About 2,000 sets of the "Home Visitor's Kit" (three volumes) also went into circulation. Unusual opportunities exist, therefore, for a unique study of diffusion/dissemination of an innovation in education via a review of HOPE's influence.